NOVEMBER 38

MODERN TEXTILES

MAGAZINE

Specializing in Man-Made Fibers and Blends since 1925

FIBERS

FABRICS

FINISHES

Callaway's **BOB WILLIAMS**— proven master of textile marketing— story page 33

THIS MONTH'S FEATURES

AND 12 MORE EXCLUSIVE ARTICLES AND TIMELY REPORTS

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for cottons and synthetics!

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produces a soft, full hand with exceptional drape.
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for greater surface lubrication

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for a softer and dryer hand

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Write for Technical Bulletin and samples

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TEXTILES MAGAZINE

November, 1958 Vol. 39, No. 11

Modern Textiles Magazine
Established 1925

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American Association of Textile Chemists and Colorists ..... Lowell Techn. Inst., Lowell, Mass.
American Association for Textile Technology, Inc. ..... 100 W. 55th St., New York
American Cotton Manufacturers Institute, Inc. ..... 1501 Johnston Bldg., Charlotte, N. C.
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American Rayon Institute ..... 350 Fifth Avenue, New York
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Synthetic Organic Chemical Manufacturers Association ..... 41 F. 42nd St., New York
Textile Distributors Institute, Inc. ..... 469 Seventh Ave., New York

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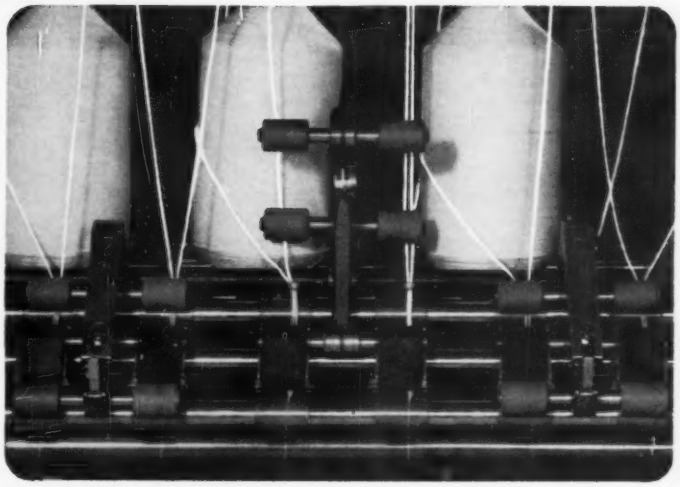

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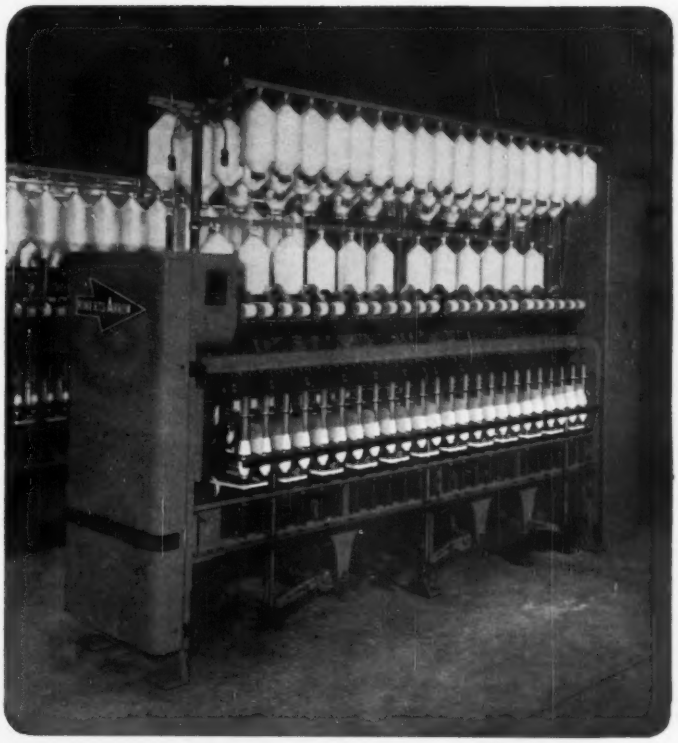

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SANFORD, NORTH CAROLINA

COMING NEXT MONTH—
Special report on Greenville

In its December issue MODERN TEXTILES MAGAZINE will publish a report summarizing and interpreting the significant new things in textiles displayed last month at the Southern Textile Exposition.

To gather material for this special article, MTM's editors attended the show for its entire five days, studying the exhibits and conferring with exhibitors and attending mill people. Our forthcoming article will be slanted toward mill executives, filling them in on the new machinery and auxiliary equipment shown at Greenville. Our aim will be to show them how the new machinery will help speed output, upgrade quality and cut costs. Watch for this special report next month.

New Group to Promote Tire Yarn

Five producers of rayon tire yarn have banded together to form a new non-profit corporation to promote the use of so-called "super-super" rayon high tenacity yarn in tires. The new corporation has adopted the name "Tyrex" as a name for the new kind of rayon tire yarn. The name given the new corporation is American Tyrex Corp. Its president is William Dalton who is also president of the American Rayon Institute. Members of the new corporation are American Enka Corp; American Viscose Corp; Beaunit Mills, Inc; Courtaulds (Canada) Ltd; and Industrial Rayon Corp.

Radiation Conference

A two-day conference devoted to radiation and high temperature behavior of textiles will be held Nov. 14 and 15 at the Barbizon-Plaza Hotel in New York City under the sponsorship of the New York Academy of Sciences in cooperation with the Polytechnic Institute of Brooklyn and the U. S. Navy Clothing & Textile Research Laboratory.

Requests for conference invitations (no registration fee) from interested professional individuals should be directed to the New York Academy of Sciences, 2 East 63rd Street, N. Y. 21, N. Y.; or to J. J. Press, U. S. Navy Clothing and Textile Research Laboratory, 29th Street and Third Avenue, Brooklyn 32, N. Y.

Effect of Senate Textile Probe

The work of the Senate subcommittee investigating the problems of the textile industry "will affect, for good or ill, all relations between the Government and the textile industry in the foreseeable future," according to Halbert M. Jones, president of the American Cotton Manufacturers Institute. He told the recent annual meeting of the Combed Yarn Spinners Association that the study and its conclusions can either place serious roadblocks before our industry or it can aid greatly.

Jones said one of the serious problems created by Government is agriculture policy as it concerns cotton. He said the industry needs a competitive one-price cotton system and the abandonment of the policy that permits surplus American cotton to be sold to overseas textile competitors at six to eight cents a pound below the cost of U. S. manufacturers. The most serious future threat to the industry, he said, is the possibility of an increasing flood of imports from the low-wage areas of the world.

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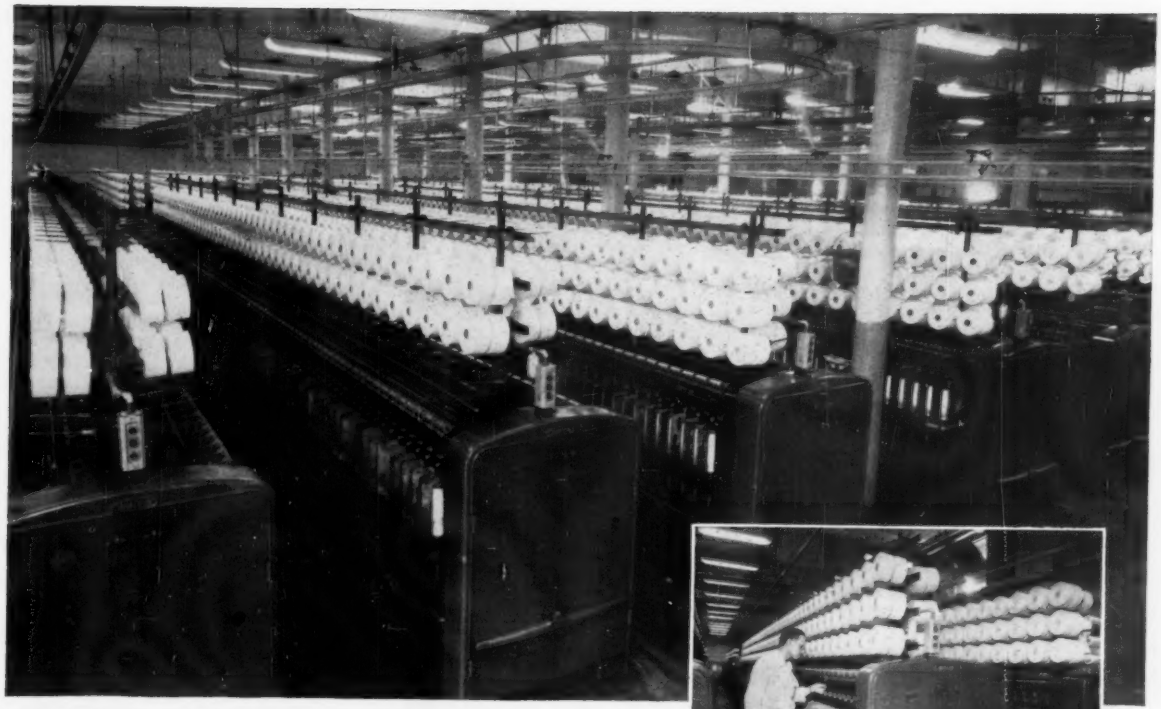

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Whitin Pacemaker* Twisters lead all others by making greater profits for their users over a far longer period of time. This outstanding Whitin Twister for cotton and spun synthetics is setting records for production, uniformity of twist and lowest operating and maintenance costs. Advanced in design and sturdily built, the machine is designed mechanically to run at speeds far beyond fiber and traveler speed limitations. The following features are available:

- **Minimum angulation of yarn path — delivery roll position relative to balloon guide permits nearly vertical path of yarn in twisting zone.**
- **Gear train in head end mounted on antifriction bearings.**
- **Laminated Bakelite gears inter-meshed with metallic gears in head end reduce noise level.**
- **Delivery roll mounted on grease-packed ball bearings.**
- **Nylon insert bearings for top roll gudgeons.**
- **Steel pulleys and through shafts mounted on antifriction bearings reduce maintenance costs.**
- **Antifriction tape tension pulleys.**
- **Stationary support rods for ring rails mounted back of spindle rail to reduce yarn contamination.**
- **Stationary separators mounted on spindle rails extending through slotted ring rails reduce possibility of end breakage at adjoining spindle positions.**
- **Hexagonal steel cross shafts mounted on ball bearings — Broached holes in lifting arms and spring counterweighted ring rails assure maintenance of yarn wind accuracy on bobbins.**

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Unifil Demand Strong

Universal Winding Co. for its fiscal year ended June 30, 1958, reported a net income of $68,594 after taxes. A company spokesman said that in view of the textile industry's depressed state, Universal was fortunate to end its year in the black. It was pointed out the most favorable factor in the firm's situation is the continued success of its Unifil loom winder; 30 customers have booked their installation in 49 separate mills, and while some of the orders have not yet been installed, 50% of these customers have already placed repeat orders.

Pre-Blending Cotton

The American Thread Co.'s mills at Clover, S. C., are now using a pre-blending operation that will pre-mix cotton from as many as 1,000 individual bales. Most of the pre-blending takes place in a two-story, 20,000 square foot building. The operation is expected to greatly aid in producing high grade yarns.

Pineapple Fiber Sacks

The problem of extracting fiber from pineapple leaves by machinery is reported to have been solved in the Union of South Africa. Pineapple leaves formerly were thrown away as waste. Reports are that the Union, in addition to devoting more acreage to kenaf as a substitute for jute fiber, will develop the use of pineapple fiber for sacks.

NON-FLUID OIL

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FOR PERFECT TWIST

The majority of textile mills use NON-FLUID OIL for ring lubrication because it is "tops." It can be applied just like oil or grease and is especially suitable for centralized method of application. Since it does not disintegrate under pressure—rings and travelers are supplied throughout the entire doff with a film of highest quality lubricant.

However applied, NON-FLUID OIL lubricates constantly and dependably, insuring longest life for rings and travelers. NON-FLUID OIL stays on rings and off rails, giving less "black" yarn and fewer broken ends—which means increased production of perfect twist.

Try it yourself. Send for a free testing sample of NON-FLUID OIL and Bulletin T-16.

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St. Louis, Mo.

NON-FLUID OIL is not the name of a general class of lubricants, but is a specific product of our manufacture. So-called grease imitations of NON-FLUID OIL often prove dangerous and costly to use.

Faster Pulp Structure Study

A new x-ray diffraction technique has been developed to permit a complete characterization of pulp structure in two days instead of the two weeks formerly required, according to Dr. L. R. Parks of Buckeye Cellulose Corp's Research and Development Laboratories. Dr. Parks told a meeting of the American Chemical Society that the major feature of the new Buckeye diffraction technique is its simplicity. *For further information write the editors.*

Nylon Impregnated Paper

Knowlton Brothers has developed grade 538 nylon impregnated paper, for applications requiring wet strength. The paper is not affected by acetone and many other chemicals. Heat and pressure can be applied to it to yield a smooth finish and the paper still retains porosity, Knowlton reports. The paper is available in widths up to 60 inches. *For further information write the editors.*

Wallerstein British Affiliate

Wallerstein Co., Inc., manufacturer of enzymatic products for industrial use, has acquired a British affiliate, Wheeler & Huisking, Ltd., of London. The British concern imports crude oils, drugs, spices, essential oils and chemicals. The acquisition is in line with Wallerstein's policy to expand its overseas operations.

Roberts to Specialize

Roberts Co., textile machinery manufacturer, is seeking to expand by specialization rather than diversification. Robert E. Pomeranz, president, calls the firm's economic philosophy "one of inverted diversification," and the objective is to penetrate deeper within "our own industry and thereby broaden and strengthen our base of operation through the development of specialized areas within our own industry." Roberts Co. is now celebrating its 10th anniversary.

Franklin Process Meeting

Executive and selling personnel of Franklin Process Co. division of Indian Head Mills, held their annual sales meeting on September 8 and 9 in New York City. Policies of Indian Head were explained in detail and top officials explained the present Franklin Process operating and selling methods.

New word in profits: Zefran®

zĕf-răn

(Zĕf-răn), n. 1.

Entirely new acrylic alloy fiber made exclusively by The Dow Chemical Company. Zefran will make money for you because it is the last word in blendability, dyeability, finishing, processing, performance, and fashion. 1. In blends, Zefran improves bloom and hand, gives cotton and wool a year-round season. 2. Takes wide range of standard dyes (including vats)—allows greater flexibility in choice of dyestuffs than any other fiber. 3. Makes the finishing of fabrics easier and all but makes a loom finish a reality. 4. Processes like a natural fiber—can be efficiently handled on all standard equipment used for staple yarn manufacture. 5. Performs like a trooper—builds "maid service" right into fabric. 6. Gives fashion a shot in the arm . . . here is the luxury fiber man made for the woman who wants *everything*.

Fabrics now being created by selected mills (for apparel only). For further information write The Dow Chemical Company, Textile Fibers Department, Williamsburg, Va.

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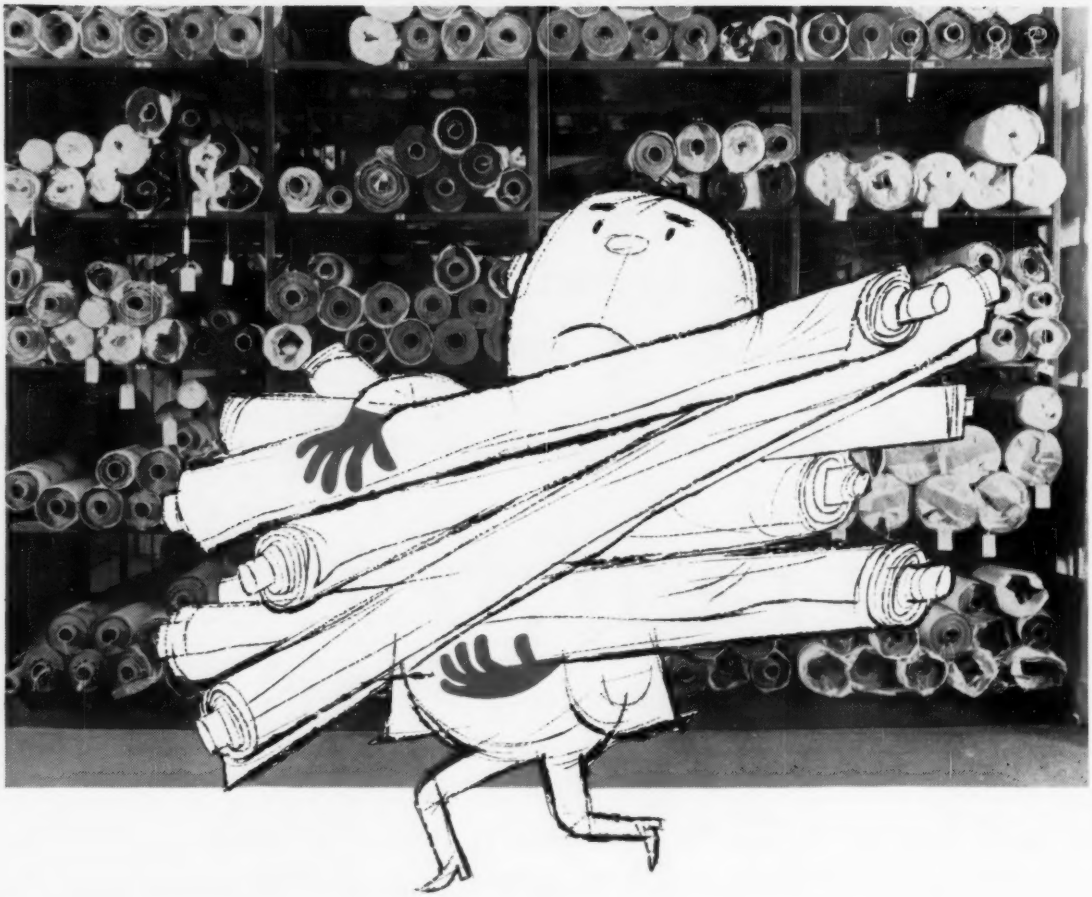


Why not stop those fabric "seconds" in the first place?

If "seconds" are taking your profits hand over fist—let's talk for a minute.

Maybe the root of your problem is the rayon yarn you're using!

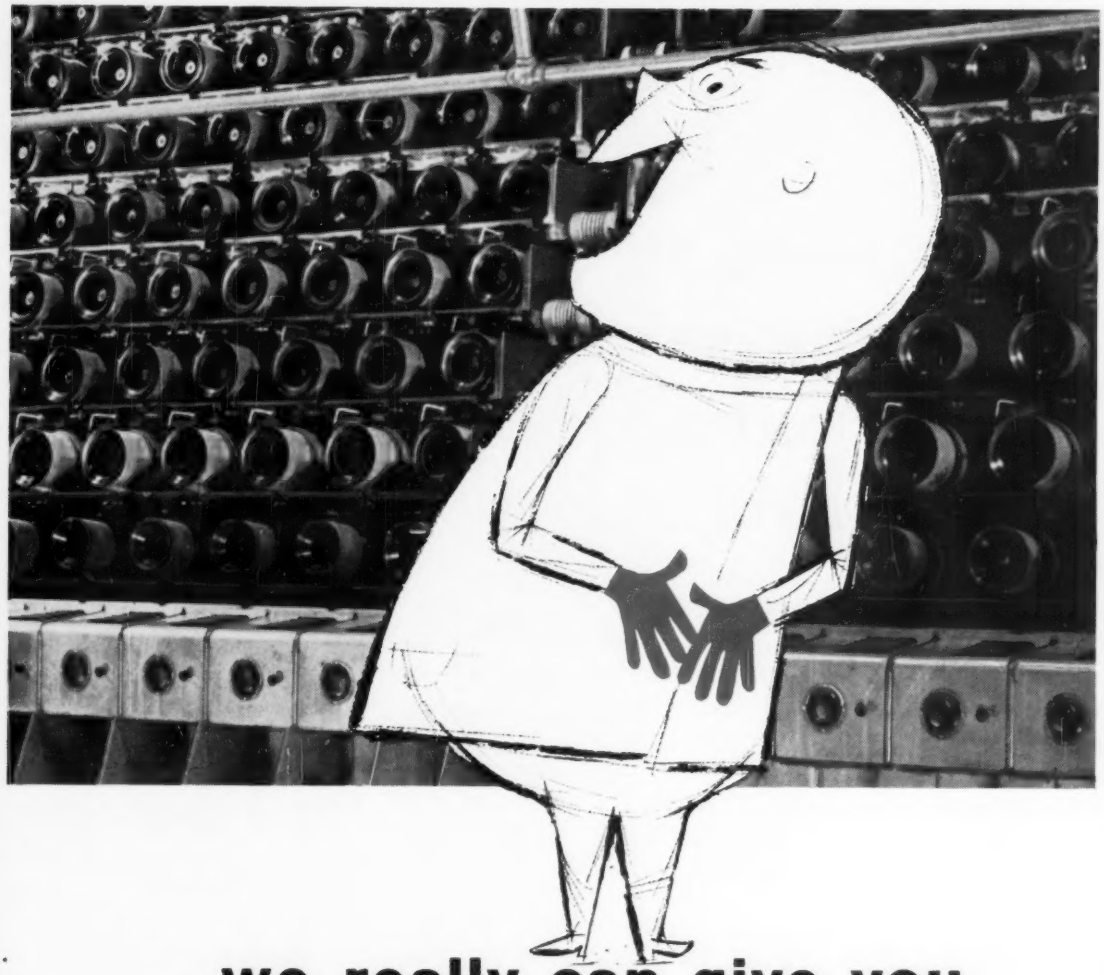
You know, rayon that's processed the regular way gets handled. Actually, it gets picked up, put down, handled many, many times before it reaches your looms.

That means many chances that filaments will be broken, multiple knots made necessary, slubs formed. That means you might get yarn with such lack of uniformity that it shows up in wildly uneven dyeing . . . and shows up in the red on your ledger sheets.

Now, consider I.R.C.'s Continuous Process Rayon. Its name says it! Its process is continuous. Nobody interrupts its inch-by-inch flow from spin-bath to final wind-up. Everybody keeps hands off it. And the rayon yarn that results is as flawless and uniform as can possibly be made!

Yet it costs no more than you're paying right now!

Only one rayon-producing plant in the whole U.S.A. makes rayon yarn this way. That's I.R.C.'s far-famed Painesville, Ohio plant. We'd like to give you a guided tour, any time you say. Meanwhile, can't we lend a hand with your plant problems now?



...we really can give you a hand!

I·R·C

Industrial Rayon Corporation
Cleveland, Ohio

Producers of Continuous Process Rayon Yarns and Tyron[1] Cord for Tires
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No. 9 in a series—how your Du Pont salesman is backed by many sales-building activities including Fiber Research, Technical Service, Fabric Development and Merchandising.

TV's master salesmen now sell Du Pont fibers to the millions!

Here you see Steve Allen and Du Pont's Henry Froehling, Textile Fibers Merchandising Director, checking over the storyboards (the TV counterpart of a script) which will help Steve sell Du Pont's better-living fibers to millions of viewers on his NBC Sunday-evening show.

To help sell Du Pont fibers day after day in the biggest advertising program in textile history, Du Pont has lined up a battery of master salesmen. In addition to Steve Allen, there's Dave Garroway, whose NBC "Today" program rates consistently as one of TV's most popular daytime shows; Douglas Edwards, CBS-TV's leading news commentator; Jack Paar, host of the NBC week night "Jack Paar Show"; and Arthur Godfrey, on the CBS radio network.

Added to this impressive array of talent are intensive spot TV and radio in key cities, scheduled to create maximum retail impact at peak fall and spring sales periods and to give Du Pont fibers saturation coverage in leading markets.

Maintaining its leadership in print advertising, Du Pont will continue to sell its fibers with advertisements in major magazines (mass magazines, women's service magazines, fashion magazines, home magazines, men's magazines), in Sunday supplements—wherever your customers look.

Broad in scope, yet pinpointed to the local buying level, this big new advertising program will help increase demand . . . build broader markets for all products made with Du Pont fibers.

This dramatically increased advertising program is just one of the ways Du Pont works to increase the market for its fibers and thus benefit you, its customer. Through your Du Pont salesman you, as a customer, also have access to a range of technical and merchandising information unique in the textile industry.

From raw fibers to retail sales

. . . Du Pont builds profits for you

PRODUCT and PROCESS NOTES FROM DU PONT

New type of polyester fiber—"Dacron" Type 64 A new type of "Dacron"* polyester fiber has been introduced to make possible greater fabric versatility in worsted—and rayon—type fabrics for men's, boys', women's and children's wear. Called "Dacron" Type 64, the new fiber has been engineered to permit styling of a new broad range of fabric types: sharkskins, Bedford cords, sheen and plain gabardines and other types characterized by a surface nap, such as mill-finished and unfinished worsteds, basket weaves and selected worsted—and rayon—type flannels. It is intended for use on the worsted and American, or rayon, spinning systems.

"Dacron" Type 64 shows marked improvement in resistance to pilling, a characteristic that permits production of the new fabric types. Regular "Dacron" polyester fiber has somewhat higher tenacity and abrasion resistance, but the new fiber has double the strength and greater abrasion resistance than the types of wool used in apparel. It offers greater dyeing versatility in that disperse colors and selected cationic dyes can be used. Ask your Du Pont salesman for more information about "Dacron" Type 64.

New low-shrinkage nylon yarns. These yarns, designated as Type 105, 205 and 305, have a lower and more uniform shrinkage compared with regular nylon yarns and are sold as zero twist on non-returnable tubes. Economic benefits are made available to the processor because of the improved uniformity of finished fabrics and the elimination of some preparatory processing steps in certain applications.

Among the many advantages of this new yarn for improved uniformity are: elimination of pirn taper barré, improved dyeing uniformity, reduction in filling bands, fewer spacing streaks, wider finished fabrics and improved yarn delivery from package.

Broadened acetate tricot yarn put-ups. Just introduced! 40 denier acetate on zero-twist tubes or beams. This is the finest commercially obtainable acetate yarn for tricot knitting. It's designed specifically for superior lingerie fabrics made on fine-needle, 32-gauge knitting equipment. And it's available on 42" beams with up to 1,360 ends per beam.

Tube size has been increased to an 8-pound, single-segment package for more economical warping; and beams are now being made available with 30" flanges which hold approximately twice the yardage of regular 21" flange beams.

Technical Information Bulletins. These bulletins contain detailed, practical information on Du Pont product and process developments. They cover fiber properties, mill processing, dyeing, finishing and fabrication. Refer to your copies frequently; they can save you time and money. To be sure you have all the bulletins you need—check with your Du Pont salesman or Technical Service representative.

*"Dacron" is Du Pont's registered trademark for its polyester fiber.

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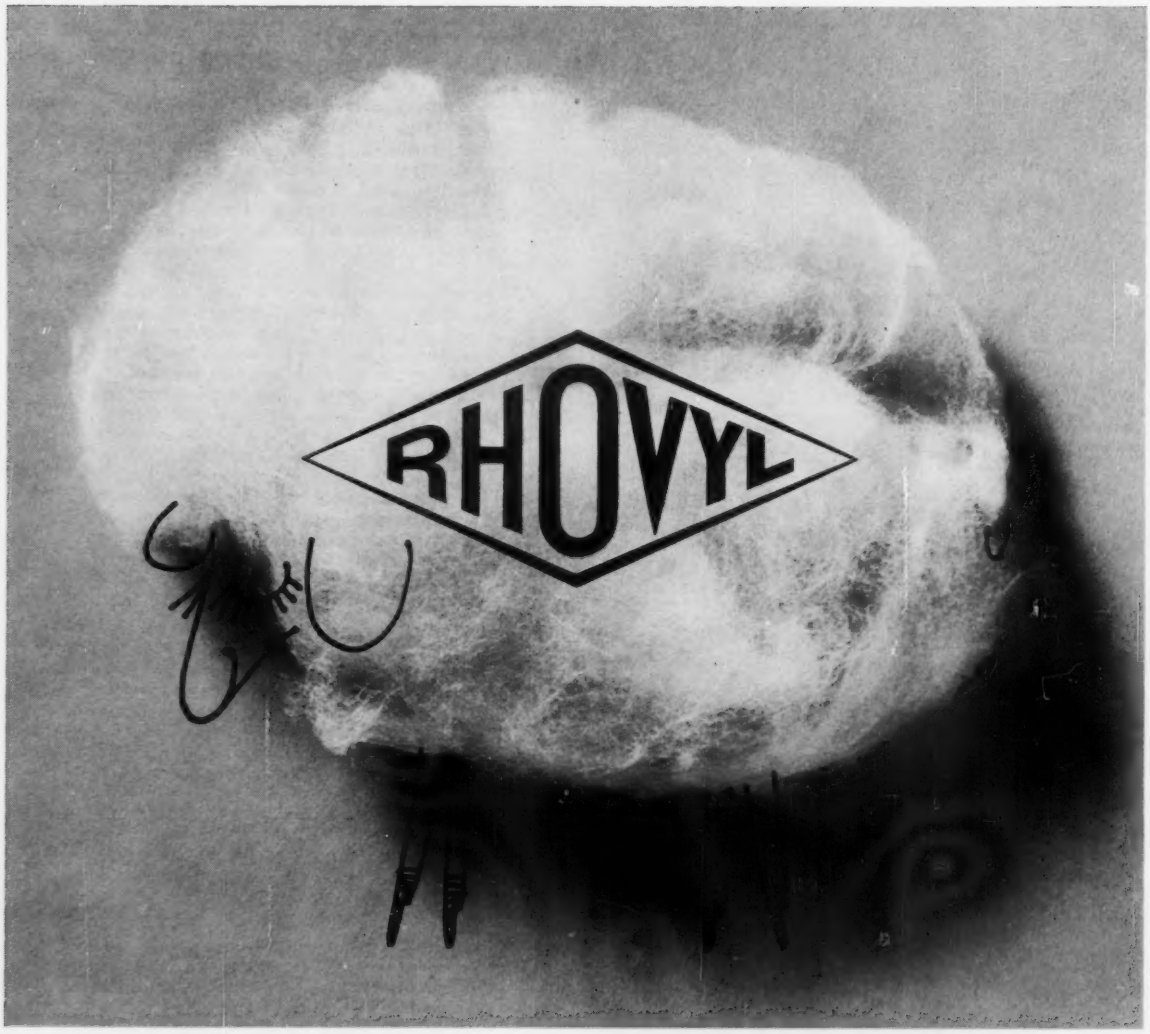

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☐ Technical Bulletin No. 6, "Caustic Soda"
☐ Wall chart of handling precautions

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BJ-11

Many strange fibers are "meeting on the frames" today, as new developments continually increase the number and variety of synthetics and blends.

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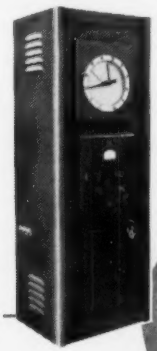

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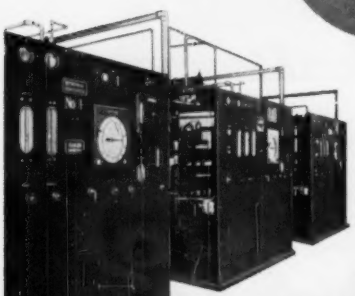

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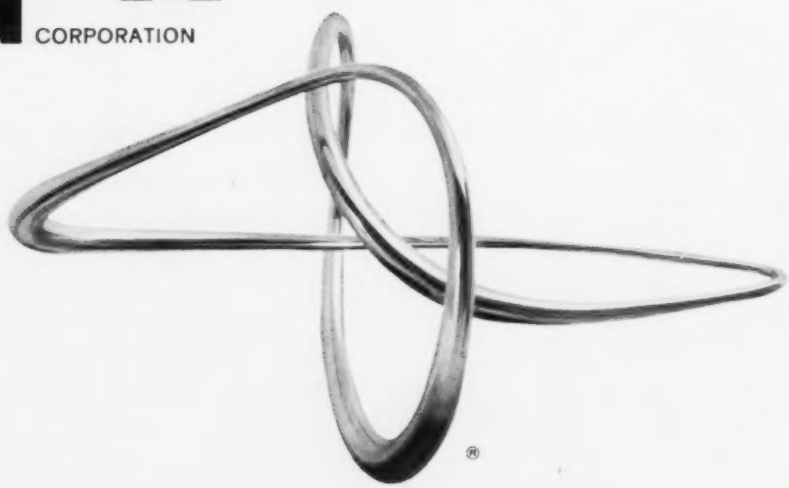

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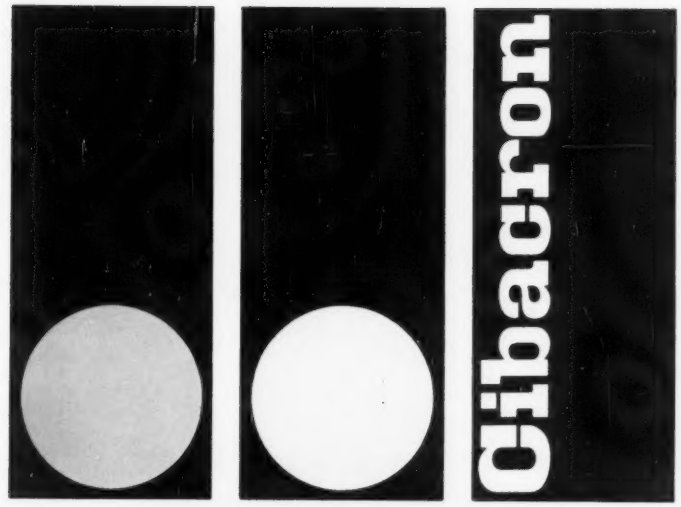
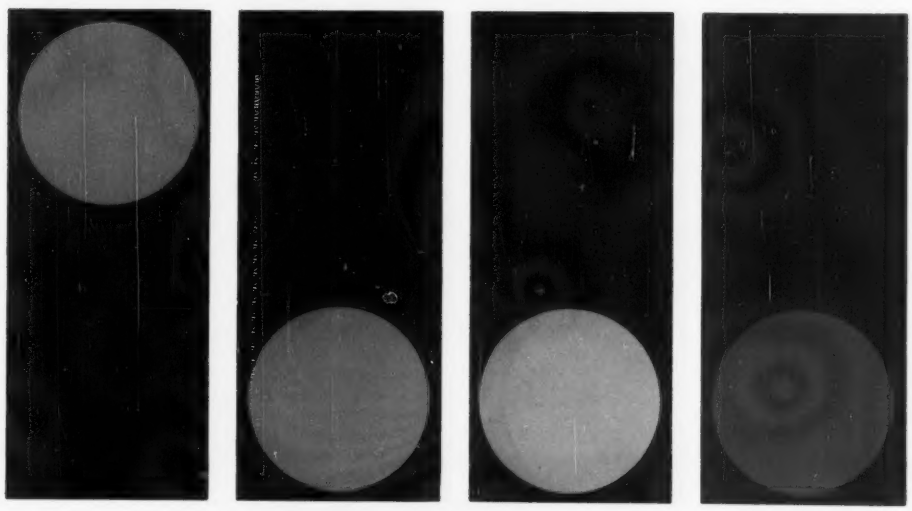


THE UNIQUE BRILLIANCE, FASTNESS AND PROVEN VERSATILITY OF CIBACRON® DYES for printing and dyeing on all cellulosic fibers have won immediate recognition and a permanent place for these original fiber-reactive dyes. An almost unlimited range of brilliant shades can be matched in clean, sharp prints and dyeings. Color yield is high, and high-speed equipment can be used. In bringing a new kind of beauty to modern printing and dyeing, the CIBACRON Dyes do not require complicated or expensive application methods but rather adapt readily to standard print shop and dyehouse procedures. On wool, too, the CIBACRON Dyes can be used to produce a combination of brilliance and fastness while retaining the fullness and softness of the wool fiber by the simple addition of NEOVADINE®AN to conventional wool dyeing formulae.



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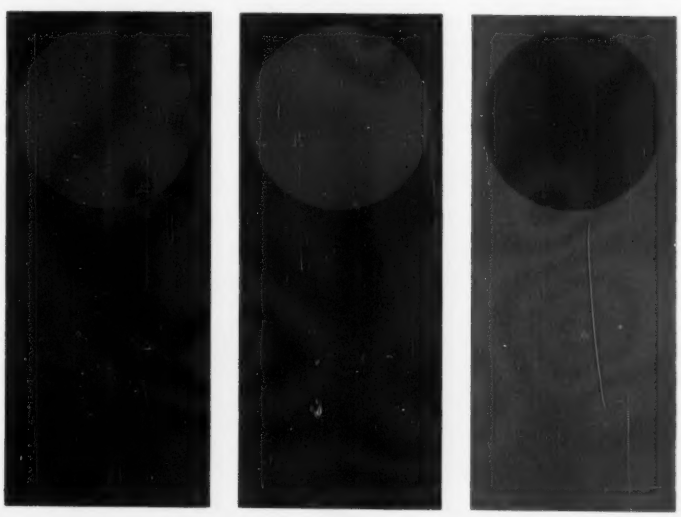


Because It's NEW It's NEWS!

TEXTILE FINISHING NEWS

ALL STAR EXTRA ★★★

NOVEMBER 1958

HYSORB* GIVES FABRICS "THIRST FOR MOISTURE"

FINISHING PLANTS SEE EXTRA BUSINESS IN GROWING DEMAND FOR "HYSORB" ABSORBENCY

A surge of interest in the new HYSORB finish is proving to be a welcome addition to Finishing Plant business, everywhere.

Because the new development adds tremendous features to synthetic fabrics, manufacturers of apparel worn against or adjacent to the skin are seeking licenses to incorporate the comfort-additive to the fabric.

Scholler Brothers, Inc., offer finishing plants, everywhere, an opportunity to test and show the HYSORB finish to their customers. Samples of the product can be obtained without cost or obligation from SCHOLLER BROTHERS.

HYSORB adds a wonderful new comfort dimension to all garments worn against the skin—a tremendous feature for Girdles, Corsets and Brassieres.

Trade Interest In HYSORB Is Running High

With the initial announcement of the HYSORB finish, recently, manufacturers of all apparel, both for men and women, have evidenced unusual interest in its potential.

Such interest has been particularly noted in fields whose product is directed to garments worn against or adjacent to the skin. Because HYSORB assures high absorbency in all synthetic fabrics, the resultant comfort is self-evident.

Extensive tests have shown that HYSORB-finished fabrics permit complete absorbency of perspiration, allows body moisture to evaporate and, generally, minimizes the feeling of constriction often found in fabrics that cannot "breathe".

Manufacturers in all fields are testing the new finish on synthetic fabrics via their converters or finishing plants.

HYSORB Material Offered for Test

HYSORB material together with instructions to finishing plants, has been offered to all manufacturers who are interested in the potential of this great new fabric finishing development.

Such material would be forwarded to finishing plants on request, without cost or obligation. Write Scholler Brothers for complete details.

Synthetic Fabrics Can Now Absorb Perspiration

A feature that promises to add another bright star to the advantages of synthetic fibers is the HYSORB finish that permits absorption of perspiration. All apparel worn against or adjacent to the skin can now be worn as comfortably, in any temperature, as fabrics of natural fibers.

In addition to the absorption of perspiration, the new finish allows body moisture to evaporate with the result that a new appreciation of comfort in synthetic fabrics is made possible.

Women's lingerie, panties, girdles, corsets, brassieres, underwear, leotards, anklets, socks, and many other items of against-the-skin wear can now be worn with a wonderful new degree of comfort and desirability.

Great New Finish Adds Absorbency To Synthetics

A new development in fabric finishes for synthetics promises to open new sales and merchandising potentials for all apparel worn against or adjacent to the skin. The new finish, known as HYSORB, brings to all fabrics of man-made fibers a new concept — a new dimension — in wearability and comfort!

Now, for sheer comfort, man-made fibers can vie with the natural in almost every phase of apparel use! HYSORB, applied to synthetic fabrics (or blends), creates a thirst for moisture. Fabrics can now "breathe"! Body moisture evaporates! Perspiration is absorbed! In addition, HYSORB assures a superior handle that will not harshen even after repeated washings.

Scholler Brothers, Inc., whose laboratories developed the HYSORB finish, will aid manufacturers and finishing plants in determining effect of the treatment on the individual fabric. A letter of inquiry on a business letterhead will bring prompt reply.

WEATHER

HYSORB finished fabric is cooler in summer, warmer in winter, because it "breathes" . . . absorbs perspiration . . . lets body moisture evaporate!

For More Information On HYSORB, Write . . . .

SCHOLLER BROTHERS, INC.

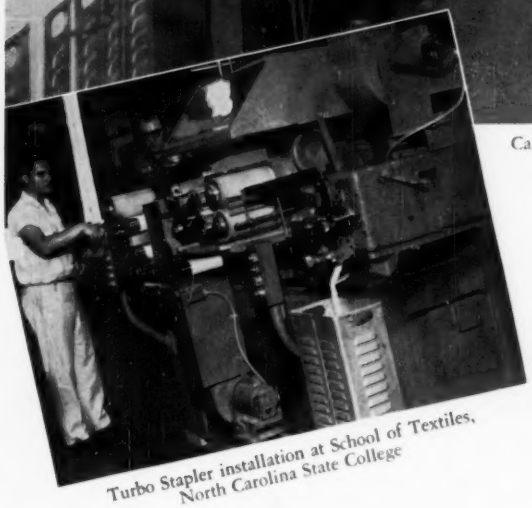
PIONEERS IN THE BETTER FINISHES THAT MAKE THE BETTER FABRICS

Manufacturers of Soaps, Softeners, Sulfonated Oils and Finishes. Collins & Westmoreland Sts., Philadelphia 34,.

IN CANADA: Scholler Brothers, Ltd., St. Catharines, Ontario.

* TRADE MARK REGISTERED

Caron Spinning Company, Robesonia, Pa., has seven Turbo Staplers.



Turbo Stapler installation at School of Textiles, North Carolina State College

3 PROGRESS REPORTS on Tow Processing Via the Turbo Stapler

Experimentally

Most fiber producers are working with Turbo Staplers to achieve new fiber effects with synthetic tow. Turbo offers a complete "laboratory" to check out new ideas in man-made fibers. Adaptable to all acrylic fibers, the Turbo Stapler is a practical laboratory tool for enhancing basic fiber properties.

Educationally

Leading textile schools are using the Turbo Stapler for practical classroom demonstration. Students quickly learn the few simple adjustments necessary to regulate the degree of heat-stretch, control the degree of crimp, and control staple length.

Let us discuss the mill-proved advantages of the Turbo Stapler with you. Call or write today.

Commercially

The amazing success story of Turbo High Bulk for sweaters is best told in these words: every day 90% of the high-bulk sweaters sold are knitted from Turbo High-Bulk Yarn. Synthetic fibers processed by the Perlok System on Turbo Staplers spin into yarns of exceptional evenness with a perfect balance of loft and bulk. More than 50 leading spinners are Turbo Stapler-equipped.

TURBO MACHINE COMPANY

Makers of Precision Heat and Steam Setting Machines, Crimpers, and Tow Processing Equipment

LANSDALE, PENNA.

Southern Representative: Parrott & Ballentine, Greenville, S. C.

TURBO SINCE 1929

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Neutrol
PERFECT DYEING EVERY TIME!
To eliminate redyeing of tightly folded or rolled hosiery, use NEUTROL. It penetrates...levels...retards ...guarantees perfect color control unions and even dyeing. With NEUTROL voids, streaks and off shades are a thing of the past.
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Though the name, CUPIONI®, was associated with 24,000,000 garments in 1957...

remember CUPIONI® is our property!

MILLIONS UPON MILLIONS of tags and labels in garments and on piece goods feature the name, Cupioni.

But . . . the use of the name is a privilege, not a right. American Bemberg consents to the use of Cupioni upon two conditions:

1. The merchandise must meet the required minimum specifications for Cupioni — as delineated in our "Cupioni Specification" booklet, furnished free of charge.
2. The name must be used properly and identified as a registered trademark of American Bemberg — as described in our free booklet: "The Proper Way to Use Our Trade-Mark, Cupioni."

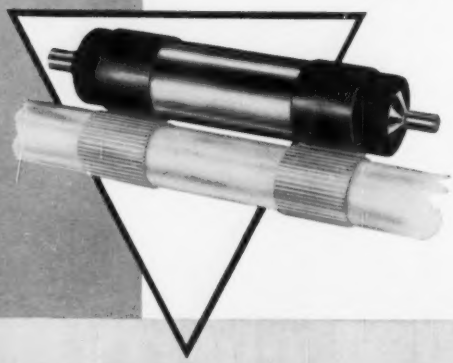
Before featuring Cupioni in tags, labels, or advertising, write for the two free booklets . . . be sure you are complying with the rules. Unauthorized or illegal usage will be vigorously opposed.

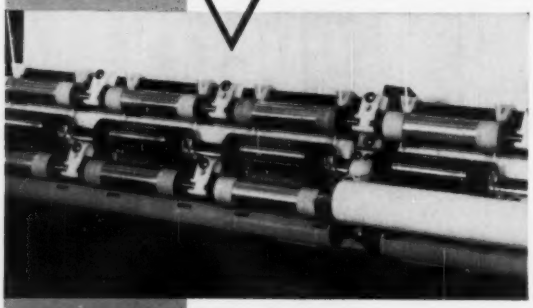
Bemberg®

"CUPIONI" IS AMERICAN BEMBERG'S REGISTERED TRADE MARK FOR CUPRAMMONIUM RAYON YARN

AMERICAN BEMBERG • Main Office: 261 Fifth Avenue, New York 16, N. Y. • Plant: Elizabethton, Tennessee.

New MagneTrol by Saco-Lowell is here.....





More than 50% of the components previously necessary to apply top roll pressure are eliminated by this revolutionary new system which uses Magnetic Top Rolls in the drafting element. Proper roll pressure is maintained only by the force of magnetic attraction.

In addition, the NEW MagneTrol system never requires lubrication above the roller beam.

These 4 reasons make the MagneTrol frame the Cleanest, most efficient ever developed.

1. **No lubrication above the beam**
2. **Exceedingly few component parts**
3. **Efficient cleaning action of the clearers**
4. **Eliminates problem of worn necks on steel roll**

Get all the facts about the revolutionary MagneTrol from your nearest Saco Lowell Sales Office.

SACO-LOWELL-SHOPS

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NEVER SAY DYE

SAY BLEND WITH COURTAULDS COLORAY®

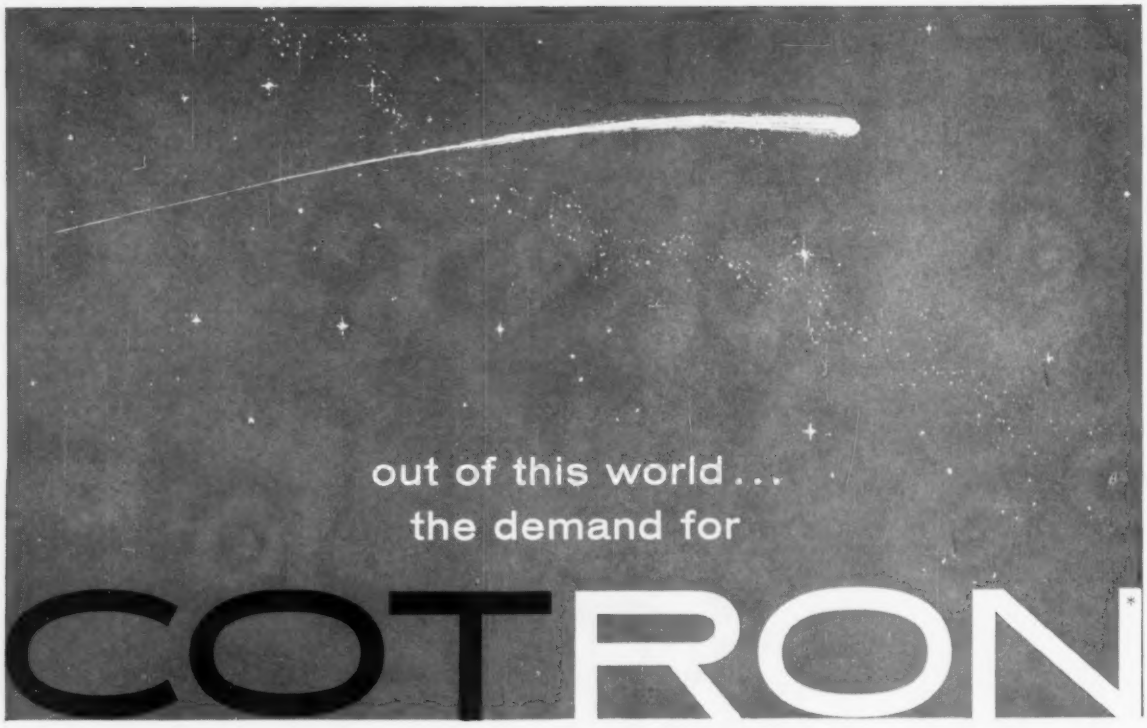
TO COLOR FABRIC OF ACRILAN* (and get a better breed of fabric entirely) is easy with Coloray, Courtaulds' super-fast color fiber. Coloray blends readily with acrylics—or polyesters—or any fiber. Coloray brings to the blend living color without any dyeing! Color that can't fade in automatic washers or anywhere, a great advantage for wash-and-wear. And soft-spun Coloray fiber contributes to *quality*. Enhances the hand of the blend. Gives it finer appearance with controlled, perfectly even yarn. Makes it feel perfectly comfortable. Prevents pilling and dust-catching. If you're making it with Acrilan, or any other fiber, you'll make it better by blending with Coloray.

*Chemstrand's acrylic fiber

COURTAULDS COLORAY®

Solution-dyed rayon fiber with Captive Color..."Can't Escape!"

For further information on new fabric development and Coloray blends now available, write
COURTAULDS (ALABAMA) INC., *first name in man-made fiber, first name in solution-dyeing*, 600 Fifth Ave., New York 20 • Greensboro, N.C. • LeMoyne Plant, Mobile, Alabama



Investigate COTRON fabrics, the new family of fabrics made of cotton and AVISCO® rayon and you'll see the REASONS are OBVIOUS!

- Richer Lustre • More Luxurious Hand • Brighter Colors
- Better Drape • Whiter Goods • Improved Light Fastness
- Better Definition of Print Pattern

. . . and here are two more reasons—but just as important:

Resinated COTRON compared to resinated all-cotton fabrics shows

- Greater strength after repeated laundering
- Marked improvement in strength retention after repeated laundering with chlorine bleach

The American Viscose Corporation is planning big 4-color, double-spread national magazine ads, trade ads, complete department and specialty store promotions, window and in-store displays, dealer mat ads, statement inserts—*the whole works!*

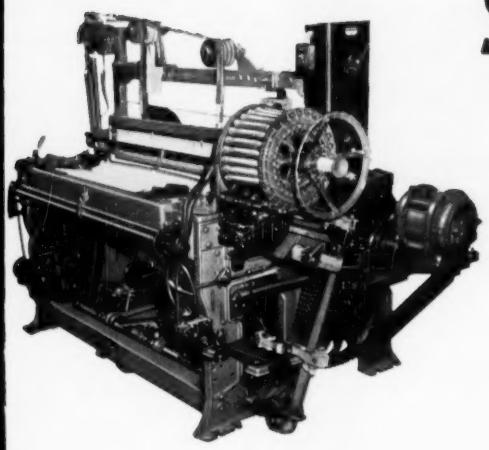
This program is fast bringing *substantial* results. People everywhere are getting to know about COTRON so well they're already asking for goods tagged with the COTRON tag. Get "on the blend wagon"—cash in on the demand for COTRON fabrics *now!*

The American Viscose Corporation is more than pleased to make available to you its Technical & Textile Service Department's vast store of information, experience and know-how regarding COTRON. A trained, highly competent technical representative is at hand at all times, ready to assist you with any COTRON fabric applications.

*Trademark of American Viscose Corporation for a fabric of cotton and AVISCO® rayon.

AMERICAN VISCOSE CORPORATION
350 Fifth Avenue, New York 1, N. Y.

AVISCO®



Stehedco presents

The REINFORCED

DURAWELD

PICKER STICK

with this Unexcelled Combination . . . . .
Strength and Whip, plus Resistance to Warping

Here is another Stehedco *exclusive* . . . a picker stick that gives you advantages never before available.

★ DURAWELD Picker Sticks are made of multiple laminated veneers of *high grade hickory* reinforced with veneers of vulcanized fiber, permanently bonded with phenolic adhesive into a uniform panel.

★ This construction gives DURAWELD Picker Sticks far *greater strength* while retaining the desired *"whip"* for high-speed looms.

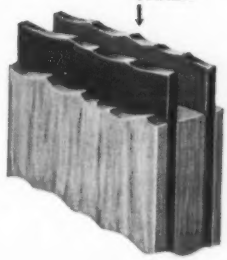
★ These laminated, reinforced picker sticks are much *less susceptible to warping* than ordinary picker sticks.

★ Stehedco DURAWELD Picker Sticks will pay for themselves many, many times with *superior performance* and *longer life.*

★ Designed for high-speed Draper looms, these picker sticks also give superior performance on slower single box and light multiple box looms.

★ The exposed, or nearly exposed, fiber at the picker end of the stick provides greater wear resistance to the lay end slot.

Invest in Reinforced DURAWELD Picker Sticks now and start counting your savings.



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caprolan®

TEXTURED YARN SEMINAR

DON'T LET THREAD GUIDES THROW YOU

Running textured filament yarns for the first time? Congratulations! It's a big step forward. For greatest success, keep this fact always in mind:

FACT: Textured Filament Yarns And Spun Yarns Are Not The Same

And because textured filament yarns are different, certain adjustments in mill methods are necessary to get the best results from these remarkable new yarns.

EXAMPLE:

Take the matter of thread guides, for instance. *Nicked* or *worn* thread guides can cause considerable damage with filament yarns and may result in streaks and filament breakage. Best idea is to install satin-finished ceramic guides which have been especially developed for use with filament yarns.

Thread guide damage is just one example of the problems we can help you avoid when running Textured Caprolan*. Call on our technical service, end-use development and fiber application laboratory staffs at any time to help you adapt Textured Caprolan to your product lines.

*Trade Mark—Allied Chemical's polyamide fiber

Fiber Sales and Service Allied Chemical *National Aniline Division*

261 Madison Avenue, New York 16, N. Y.

***#2** of a series*

MODERN TEXTILES
Magazine

Publisher's Viewpoint

A Challenging New Era for Textiles

The 20th Southern Textile Exposition held in Greenville, South Carolina, October 6th through 10th, has been acclaimed by both attending mill people and exhibitors as the most successful in the long history of these great industrial shows.

Attendance was larger than ever before, and the quality of those thronging the aisles of Textile Hall was of a kind that gladdened the hearts of exhibitors. The crowd was satisfyingly sprinkled with high-ranking mill executives and important key men in production and management phases of mill operation.

Exhibitors were virtually unanimous in reporting to Modern Textiles Magazine their high satisfaction with the reception their exhibits received at the show. They were pleased with the serious and knowledgeable millmen who crowded their booths all day long during the five days the exhibit was open. The questions they were asked, they told us, indicated that visitors to their exhibits were keenly interested in the equipment and machines on display—interested in learning how these new products and improved older products could do a better job in their mills.

Improved Machinery Wins Praise

Along with the visitors to the Exposition, the products on exhibit were of equally impressive stature. From the smallest hand tool or item of mill usage such as tiny ring travelers on up to new spinning frames, looms, tenter frames and huge dryers, the mill equipment on display was a forceful tribute to the engineering skill of the American textile machinery and supplies industry.

In fact, if the Exposition can be said to have left one over-riding, and truly basic impression on an observer amid the bewildering variety of items on display it would be this: the American textile industry has at its disposal, as never before, machinery that will enable it to improve its earnings. The industry has ready at hand machinery that can drastically improve manufacturing efficiencies; and improved efficiencies mean higher production at lower cost.

To reap the benefits of these improvements, our industry has to speed up its acquisition of the new, better machinery so abundantly available as the Greenville show demonstrated. Hearteningly, reports from exhibitors of machines sold during the show and keen interest in the possibility of buying revealed by mill managements who attended would seem to indicate that the textile industry is showing an increased awareness of the advantages of acquiring the latest and best manufacturing machinery.

If this is the case, it is a trend that should be encouraged. For it is well known that there is much obsolete equipment still in use throughout the textile industry. Such equipment is a drag on the progress of the industry, a heavy weight to have to carry into the new era of textile prosperity that appears to be opening before us.

Brighter Outlook Reported

That such an upturn in demand for textile products is under way was another encouraging element that became clear at the Greenville show. Millmen visiting the Exposition generally reported that business in their individual companies was picking up noticeably.

Many pointed out that their mills were getting more heavily engaged in the manufacture of man-made fiber fabrics and blends of natural and man-made fibers. Virtually all the millmen at the show, even many from companies once exclusively cotton and wool users, showed their liveliest interest in the new machines that are intended for running man-made fibers and blends, or could be easily adapted to processing these new textile materials.

Summing up, we believe it can be said with entire accuracy that the 20th Southern Exposition revealed that a new vitality, a fresh sense of profitable opportunities, and a sharp upward turn in demand for fabrics is today sweeping the great American textile industry. This new era is a challenge for all of us.

A. H. McCullough

OUTLOOK

in textile marketing

By the Editors

Wide open and waiting to yield substantial profits, there lies before the American textile industry a vast and so far largely untapped market for man-made fiber blends woven and knitted of worsted type yarns. This is the opinion of a recognized authority on the manufacture of such yarns.

He is Germinal N. Giraudi, vice president of Roberts Co., Sanford, N. C., makers of yarn spinning and preparatory machinery. Giraudi has an international background in long-staple man-made fiber blending and spinning. Born in Switzerland and now a U. S. citizen, he was general manager for many years of a large integrated mill in Italy. In recent years his services as a consultant have been much in demand both in the U. S. and abroad. He joined Roberts early in 1957.

Giraudi is the first to point out, of course, that there are several dynamic mill organizations who are competitive with foreign manufacturers in the production of worsted type yarns and fabrics.

But he believes that, by and large, our industry has not met the problem full force. If the textile industry faces up to its opportunity, he says, it will have a chance to recover sales lost to foreign manufacturers, and also tap a pent-up, tremendous demand that can come from the proper development of new markets.

For example, Orlon sweaters, Giraudi points out, can be produced with such high quality as to capture the market from cashmere. More importantly, they can be sold at such attractive prices that they would be bought several at a time in different colors and styles by the same woman. This, Giraudi says, illustrates how new markets can be created.

When man-made fibers became available to the textile industry, Giraudi points out, cotton system manufacturers adapted their machines and methods to the new fibers; worsted manufacturers did the same.

What is needed, actually, he insists, is a fresh new approach to the problems and opportunities provided by the synthetics. Such a new approach means machinery designed specifically to handle the new fibers rather than using existing machinery ill-fitted for these new textile materials.

Giraudi is a convincing advocate of the "engineered approach" to fabric manufacturing. He believes that the first step in making a yarn is to decide to what use the cloth will be put.

In worsted-type fabrics—the market whose potential he is particularly enthusiastic about—what is wanted usually, he says, is a firm crisp, resilient hand.

Once you have decided on the kind of cloth you want, it is necessary to start out to get it way back at the fiber level.

In selecting the fibers for blending, choice of the deniers is important, he stresses. For crisp resilient fabrics, his experience has indicated that coarser deniers in longer staple lengths yield fabrics with a crisper, firmer hand.

All in all, Giraudi says, the fabric designer, in combining fibers for a yarn for worsted-type fabrics using man-made staple fiber, must keep these four elements in mind:

1. He must select the fibers that are best suited for the kind of cloth he wants. For smooth, crisp, resilient fabrics of the worsted type, Giraudi thinks highly of Dacron and wool. He also believes that excellent fabrics of this kind are made of Dacron-rayon and Orlon-rayon blends.

2. In determining the fiber composition as well as the other essential elements of the yarn, price must be kept in mind. In other words, the fabric designer must have a clear idea of the market for which his fabric is intended. It may be easy to design an optimum cloth if cost elements are disregarded. But, of course, in a world where business must be operated at a profit, cost cannot be disregarded.

3. As noted above, the designer must select the staple fiber deniers, which when blended, will most nearly yield the performance and appearance factors he wants in the finished cloth. Giraudi is a great believer in denier blending when using the man-made fibers.

4. In considering all the elements that go into the selection of fibers, dyeing must also be kept in mind as an influencing factor. The aim should be to get the combinations of deniers, length and fibers that will yield optimum results within permissible cost limits.

In general, Giraudi is an advocate of long-staple spinning. In contrast to cotton system spinning where shorter staple is necessary, long staple spun on a modernized worsted system is best, he says, for achieving the "worsted" hand—characterized by crispness and resiliency.

(Continued on Page 81)

NONWOVENS Part 1

Where they stand today

By Howard E. Shearer
AMERICAN VISCOSE CORP.

Thinking of getting into nonwovens? This informed review (in two parts) will tell you how to make nonwovens, what equipment you'll need and where you'll find markets

RECENTLY there has been a great surge of interest in bonded web material now popularly known as nonwoven fabric. While this material can trace its ancestry to waddings and felts, it was not until 1950 that it received official recognition and was defined by the American Society for Testing Materials as "a structure consisting of a web or mat of fibers held together with a bonding material".

Since that time this new industry has had many growing pains while showing a steady and substantial growth and development. Current production is placed at some 80,000,000 to 85,000,000 lbs. Estimates are that this production may be more than doubled within the next three years. This growth has brought greater interest in this material by both the textile and paper industries. If current developments materialize as expected, the production figures indicated will be far exceeded.

Greatest consumption of nonwovens is expected to be in a medium weight material of 2 to 4 ozs./sq. yd. This would include backing materials for vinyl coatings, lining materials, wiping cloths, filter products, bagging and numerous other specific items. The large volume currently being used in the medical and surgical fields is expected to show steady growth while household applications and wearing apparel may well outstrip all others in years to come.

This step-up in poundage has been accompanied by an increase in production rates of web forming equipment; the building of wider machines; the discovery of new methods for doffing and forming webs; and the development of techniques for forming combinations of fiber web with yarn, woven fabric and paper. Keeping pace with the evolution of equipment has been the discovery of new synthetic bonding agents in increasing number and quality at falling costs.

These changes have brought about a change in the limits of use of this material from the disposable to the discardable; with the cleanable and wash and wear types being increasingly heard of. With these new horizons opening the reason for optimism on the part of the industry may be better understood.

FIBERS USED

When nonwoven fabrics first appear on the market some 15 years ago they were made almost exclusively

Howard E. Shearer

of cotton, other than for the bonding agent, and were designed primarily to use the idle equipment and waste fibers of the parent textile mill for the production of a low grade, cheap, disposable product. Nonwovens made of cotton are usually characterized by a soft flexible and relatively bulky hand. They are generally quite absorbent but leave much to be desired in the way of uniformity, freedom from neps and strength. Some wool noils, hair and other natural fibers, are used, usually in blends. The field of use with these fibers was quite limited and the product was early looked upon with disdain by both paper and textile industries. Subsequent recognition of this material by the paper and textile industries may be attributed to the introduction and increasing use of rayon more than to any other single factor.

Rayon

Today many millions of pounds of rayon are used in nonwoven fabrics to improve their strength and utility as well as their esthetic appeal. Rayon permits nonwovens to accomplish this more economically than any other fiber by reason of the many controlled

staple descriptions in which it is made. These are capable of being readily processed on all types of web forming equipment with a minimum of loss and at reasonable cost in line with market values.

Rayon staple used in nonwoven fabrics today may be as fine as 1.0 denier, where added softness is desired; or as coarse as 100 denier where a more open structure and high stiffness are of value. Intermediate deniers of 1.5, 3.0, 5.5, 8.0, 15.0 and others are used in lengths ranging from ¾" to 7" as may be required for processing on the different types of nonwoven fabric production equipment, or to impart specific desired characteristics to the product.

To further satisfy the demands of this trade, rayon is used in bright, dull and extra dull lusters, both bleached and unbleached. Each has found extensive use. The high sheen imparted by the bright fiber may be desired in a cocktail napkin or drapery. On the other hand if a soft, absorbent, opaque fabric is desired, as in a sanitary napkin cover, it may be found advantageous to use a fine denier extra dull staple. For other hygienic and surgical applications of these materials, a bleached fiber may be used.

To impart added bulk to low density material, as used in many filtration applications, a permanent crimp staple is most frequently used. This same crimped staple when heavily bonded under high pressure may be beneficial in producing a firm, dense, scuff-resistant material for use in shoe liners, artificial leather and laminated plastics. Extra strength rayon staple descriptions are available when the binder and method of production warrants their use.

In addition to being used independently, the various rayon descriptions are used in blends with one another, or with other fibers, literally for more end uses than you may find them in use in woven fabrics.

Acetate

Acetate staple is one of the earlier of the man-made fibers to be used in the manufacture of nonwoven fabrics. It was first used in the plasticized form as the bonding medium for the cotton web. The unplasticized acetate is becoming increasingly important to nonwoven fabrics because of its thermoplasticity, mildew resistance, low swelling and reasonable cost. Being thermoplastic, it may act as its own bonding medium; or the mat containing it may be sprayed with a relatively cheap plasticizer to form a well bonded low density material such as is desirable for insulation and filtration purposes.

Synthetic Fibers

The past few years has seen an increasing amount of the newer synthetic fibers, such as the acrylics, polyesters and polyamides being used in nonwovens. Each is used for some particular property it imparts which the other less costly natural and man-made fibers do not so well serve. Among the desirable features offered by these fibers are good chemical and electrical resistance, increased resistance to creasing and good resilience.

BINDERS

Irrespective of what fiber is used or on what type of equipment it is formed, nonwoven fabric is no better than the binder which holds the fiber web together. Bonding agents used may be grouped under three broad classifications as represented by the liquid dispersions, powdered adhesives and thermoplastic fibers.

Liquid Dispersions

Included among liquid dispersions are starch, a relatively cheap non-permanent type of binder which is easily applied but gives a rather brittle product. We also have polyvinyl alcohol which is sometimes used as a preliminary binder in applications intended for one time use. Polyvinyl acetate is a popular binder of the liquid dispersion type. It is in the medium price range (35¢/lb.—50% solids) and imparts reasonably good strength and flexibility to the product. It is used where freedom of odor and taste are important.

Viscose makes a permanent tough binder, is quite stiff when dry and soft when wet. It is not readily available and requires an acid set and water wash. The polyvinyl chloride latices give good wet and dry strength, are tough but not very elastic. They may impart a leather-like finish to the product.

Various compositions of butadiene-acrylonitrile and butadiene-styrene having good adhesive and good elastic properties are also used. Those high in butadiene content are usually more rubbery and require a short cure. As a general rule, they impart good wet and dry cleaning resistance, good tear resistance and strength. They have offered something of a problem with migration and lack of color stability and odor. These, however, may be minimized and controlled to some extent by the method of application. They are among the most expensive of the binders, running up to 60¢-65¢/lb.

The acrylics as binders for nonwovens are becoming increasingly important. They possess good adhesive properties, good color stability, impart a relatively soft hand, with good wet and dry cleaning resistance. They are usually supplied with about 46% solids, at around 35¢-40¢/lb.

Powdered Adhesives

Powdered adhesives are usually of the thermosetting and thermoplastic resin types. They have not been widely used, although they seem to be coming into increasing favor, especially for low density nonwovens where wetting by the binder or application of heat and pressure might cause excessive matting and compression of the material.

Thermoplastic Fibers

Plasticized acetate[1] and Vinyon (vinyl resin) fibers[2, 3] are among the earliest thermoplastic fiber binders used. More recently special low melting point acrylics, polyester and polyamide fibers have been developed for bonding purposes. While these may be activated to bond the web by application of solvents, it is usually found preferable to control the bonding of the materials through application of heat and pressure. A wide variation in the characteristics of the bonded material may be achieved by regulation of the amount of heat and/or pressure applied, as well as by the amount of thermoplastic fiber present. Such fibers may be present in amounts ranging anywhere from as little as 5% to over 65%.

MACHINE ARRANGEMENTS

Cotton Cards

One of the simplest and most widely used methods of forming the basic web structure of a nonwoven fabric is through an arrangement of cotton cards, in series or in parallel (Figure 1). The number of cards used will depend upon the weight of the composite web desired, which usually constitutes from 50% to

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By Jerome Campbell
Editor, Modern Textiles Magazine

Callaway's Bob Williams — master of textile marketing

Robert D. Williams, Jr., the man who directs the marketing of Callaway Mills' varied and voluminous output of fabrics, is a seasoned textile merchant with an enviable record of success. He is the archetype of the kind of men mill managements are said these days to be frantically hunting: those rare men who have the skills, the energies and the resourcefulness to find profitable markets for the enormous yardages of fabric the mills are turning out. He is a man whose entire long career shows that he understands and has mastered the difficult art of selling textile products.

Nobody at Callaway Mills is given to talking much about the company. In his time, Fuller Callaway, the fabulous founder of the Callaway textile interests, was fond of saying: "Why talk? If what you have to say is bad, your bankers might hear; if it is good, your competitors might hear." This wise admonition, long after Fuller's time, is still heeded by company people; consequently Callaway's annual sales are a secret; annual yardage produced is a secret; number of spindles and looms is a secret. It is admitted, however, that Callaway is the 15th in size among U. S. textile operations.

This, of course, makes it a substantial operation; and in spite of the paucity of information about its functioning, Callaway has the reputation of being a comfortingly profitable company. What is more, its variety of textile products, both for industrial and consumer use, are highly respected by customers and competitors. All these elements make Bob Williams, president of the Callaway sales organization and vice president of Callaway Mills Co., the producing arm of the business, a man of immense stature in the textile industry.

"The secret of successful marketing in textiles," he says, "is first to understand your market through proper research, then to style or engineer a product so aptly, manufacture it so good that a properly equipped salesman can sell it without too much difficulty." Basically, he adds, this is what he has tried to do in his three decades heading up Callaway sales. In those years, he has shaped Callaway's merchandising policies that led the company from a fairly narrow concentration on industrial fabrics into such finished goods as towels, scatter rugs, tufted carpetings, laundry textiles, and a vast array of styled novelty

gray goods for the consumer trade such as draperies. Today, Callaway, as everybody knows, is an extremely substantial factor in the towel and bath mat markets. In tufted floor coverings, Callaway is the biggest producer—one statistic related to production the company is willing to reveal. As for draperies, a comparatively latecomer to the Callaway line, here too its reputation as a supplier of rightly styled and competitively priced fabrics is steadily growing.

The fact that Callaway is big in the consumers' goods it chooses to make as well as in its first important field, industrial yarns and fabrics, can be traced back to another rule from Bob Williams' book of successful textile marketing. "If you decide to enter a market, you must enter it in a big way," he says. There is no point and no profit in being half-heartedly or feebly in a given field, he firmly believes.

Towels—A Case in Point

Callaway's entrance into the towel market is a case in point. The company began to make and sell towels in the face of stiff, capable and deeply entrenched competition. Callaway lost no time, under Williams' leadership, in becoming a factor in towels. His leadership in this case meant as always, a lot of hard and deep thinking about the towel market, and the best ways to compete successfully in it; it meant painstaking attention to styling to make sure that Callaway towels were pacesetters in smartness, in that contemporary *rightness* that make women want to buy them when they see them; and, of course, it meant going back to the mill to be certain that the towels had performance qualities equal to or better than competitive goods; and it meant willingness to invest heavily in the equipment necessary to deliver these qualities not in small yardages (there's no profit there, Williams knows) but in big volume—volume that would enable small unit profits to be multiplied many times over.

Leader in Tufted Carpets

As with towels, so it was earlier with scatter rugs and with tufted carpets. With their company's sales of tufted carpets well ahead of some of the big old-line carpet manufacturers, Callaway people have good reason to be proud of their achievement in this field. It is safe to say that nobody knows more about tufting than Callaway technical and production people; they have led the field in showing what can be done by those giant sewing machines called carpet tufters. Callaway's line of tufted floor coverings is really amazing in its rich variety of textures and colors, and in its bold-minded leadership in utilizing man-made fibers along with cotton and wool.

The marketing skill that has enabled Bob Williams to lead Callaway into its position as first in tufting, and to its strong place in towels and scatter rugs has been almost 40 years in the making—a fact hard to believe because Williams, with his vigor and drive, seems a lot younger than his 61 years. His education in fabric marketing began in 1919, when at the age of 21, after service in the army of World War I, he got a job with J. Spencer Turner Co. of Worth Street, then sales agents for International Cotton Mills. In Turner's sales department, he learned the basics of selling cloth in the good old way—by cutting samples and taking care of the house trade. Significantly, Turner's major lines were industrial fabrics and toweling. Significant, also, in the light of Williams' later career, was the fact that some of the mills producing Turner's industrial cottons were located in LaGrange (headquarters of Callaway) and Hogansville, Georgia.

Moving up in a year or so to be a full-fledged traveling salesman, Williams took over Turner's Chicago office and later was sent to sell both industrial fabrics and toweling in Boston. By 1929, Williams, rounding out his first ten years as a cloth salesman, was with the old Amoskeag Manufacturing Co. (they had purchased the Stark Mill from International Cotton Mills), whose giant mills strung along the Merrimack River in Manchester, New Hampshire, were for sheer size one of the wonders of the American textile industry. For Amoskeag, Williams headed up the towel and ticking departments and, in general, was feeling reasonably satisfied with his job and with his progress in the textile industry.

He was consequently not too much interested in persistent invitations to run down to LaGrange to discuss a job with Cason Callaway. Cason, the son of Fuller Callaway, who died in 1928, had succeeded his father as president of Callaway Mills. Callaway had been growing rapidly and had in fact acquired in 1925 three of the Georgia mills whose output of industrial fabrics Williams had sold when he was with Turner a few years earlier.

An Invitation to Georgia

Cason Callaway was anxious to diversify Callaway's output away from industrial fabrics, and he had heard much about the selling abilities and marketing acumen of young Williams. After receiving many invitations to visit down south and sample some of the Callaway brand of Georgia hospitality, Williams decided that no harm would come of a trip to LaGrange and a chat with Cason.

The upshot was that in 1929, he worked out an arrangement with Callaway by which he set up a sales office in New York to market the output of Callaway's mills making consumer fabrics. The office was operated under the name of R. D. Williams, Jr., representing Callaway Mills. Subsequently this operation was discontinued and Williams was given the job of heading up sales of all Callaway products and consolidating their various sales activities. This was in 1938 when Williams was made vice president in charge of all Callaway sales.

Growth in Industrial Sales

His work on behalf of Callaway over the years throughout the regime of Cason J. Callaway and Fuller E. Callaway, Jr. as presidents of Callaway Mills Company is summed up by Williams himself in this way: to maintain Callaway's established position as an important manufacturer of industrial yarns and fabrics while leading the company into new markets as a producer of consumer products. He has done his work so well that Callaway's activities as a manufacturer of towels, carpets, scatter rugs and draperies have grown to the point that they bring as much dollar volume as the company's industrial sales. It must be noted, of course, that during these years of growth into consumer products, Callaway had also grown in its sales of industrial yarns and fabrics and fabricated textile end products for specific industrial purposes. This too has been an activity supervised by Williams.

High in importance among Williams' tried-and-tested rules for successful marketing is the need for

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how to manufacture

ORLON BLANKETS

By R. C. Schechinger,
The Du Pont Co.

Here is practical, specific information for preparing yarns, weaving and finishing blankets of Du Pont's acrylic

DURING the past two and a half years, the Du Pont Co. has carried out a systematic study of all processing conditions that could affect the performance of blankets of "Orlon" acrylic staple. As a result of this research work, blankets with desirable characteristics are being manufactured with this fiber. Little or no shrinkage occurs in home automatic laundering. They retain their soft, fluffy appearance and hand after laundering. Blankets of Orlon also possess brilliance of color, warmth with light weight, and superior strength. Orlon is non-allergenic, and it is not weakened by mildew and is unappetizing to moths.

As a result of this evaluation, it was determined that the performance and aesthetics of blankets of Orlon are not influenced by any single processing condition or procedure, but are the result of a combination of processing variables involved in blanket manufacturing. The proper combination of staple, yarn twist, yarn size, construction, type of weave, and finishing procedure will produce excellent blankets of Orlon.

THE SELECTION OF STAPLE

The staples used predominantly in blankets of Orlon acrylic staple are Type 39 and Type 39 B. See Table I.

filling yarns. The soft cashmere-like hand with a dense surface nap which is especially desirable in baby blankets can be produced with Type 39 A Orlon or with blends of two- and three-denier Type 42. The warm, soft hand associated with sweaters of Orlon can be achieved in blankets by using Type 39. To produce a blanket with the crispness and resilience of a wool blanket but with greater bulk and body per unit weight, Type 39 B or blends of Type 39 B with six- and 10-denier Type 42 are used.

The type of Orlon acrylic staple used in blankets influences their performance in several other ways. The use of heavier deniers in the blend contributes to the control of surface distortion. Bottom cover is improved in blankets made with heavy denier Orlon by the addition of 30% of a fine denier to the staple blend.

While not an important problem, shedding is a factor which should be considered when establishing processing and construction conditions. Studies have shown a reduction in shedding can be achieved by the use of Type 39 B (with an average cut length of two and one-fourth inches in a variable staple diagram.) When straight cut length Type 42 staple was used, increasing the staple length up to three inches

TABLE I
ORLON ACRYLIC STAPLE FOR THE WOOLEN SYSTEM

Type	Denier Per Filament		Fiber Length (Inches)	
	Range	Avg.	Range	Avg.
39	2.0 - 6.0	4.2	1¼ - 3	2 1/10
39 A	1.0 - 3.0	2.4	1½ - 2½	2
39 B	3.0 - 10.0	6.5	1½ - 3	2¼

Type 42 Staples	Denier Per Filament	Cut Length (Inches)
Semidull, Bright, Regular, or High-Shrinkage	2,0, 3.0, 4.5, 6.0, 10.0	2, 2½, 3
Color-Sealed Black	3.0, 6.0	2, 2½, 3

(Type 39 Orlon is a blend of deniers and lengths engineered specifically for the woolen system. Type 42 denotes specific deniers and lengths.)

Type 39 staple offers the advantages of good mill efficiency, as well as an improved woolen yarn product.

The hand of blankets of Orlon can be greatly varied by the selection of the types of staple used in the

reduced shedding. A variable staple diagram, with a minimum average cut length of two inches such as is present in Type 39, has less tendency to shed than a straight uniform cut length. Denier *per se* had little effect on shedding.

YARN MANUFACTURE

Conventional woolen system processes are used to manufacture yarns for blankets of Orlon. Blankets containing woolen spun filling yarns were superior to worsted or cotton spun filling yarns. Woolen spun yarns were easier to nap, had a more luxurious surface, and were superior performers.

In blanket yarn construction, the yarn size and twist are governed by the weight and type blanket that is to be produced.

Twist

The filling yarn twist is dependent upon the yarn size and the denier of the staple used. The following table indicates the twist that will give the best yarn performance in terms of shedding, surface distortion, and cover.

TABLE II
FILLING YARNS

Twist (Turns per inch-Z)	Yarn Weight (Run)	Type Orlon Acrylic Staple
7	1-2	Type 39, Type 39A, Type 42, 3 and 4.5 denier
6.5	2.1-2.4	Type 39, Type 39A, Type 42, 3 and 4.5 denier
6	2.5-3	
6.5	1-2	Type 39B, Type 42, 6 and 10 denier
6	2.1-3	

The twist levels shown in Table II yield maximum cover with minimum shedding. Reduced twist improves cover but increases the shedding potential of the blanket. On the other hand, with a more highly twisted filling yarn than recommended above, it is difficult to achieve good blanket cover. More napping runs are required which leads to greater width loss.

The twist for cotton spun warp yarns in the 15/1 cotton count to 19/1 cotton count range can be secured with a 2.8 twist multiplier when three denier, two-and-one-half-inch Type 42 is used.

For woolen spun warp yarns, the following table gives the approximate twist:

TABLE III
WARP YARNS

Yarn Weight	Woolen System	Approx. Warp Twist (Turns per inch)
1.5-2.9 run		7
3-4 run		9
4.1-5.4 run		10.5
5.5-7.5 run		11

Note: These twist data are valid for Type 39, Type 39 A; 2, 3, and 4.5 Denier Type 42 Orlon acrylic staple.

FABRIC TYPE

A blanket with good cover, hand, loft, and density is produced from fabric constructed as described under the following headings:

Yarn Size

For double woven blankets of Orlon, filling yarn sizes in the two-to-three-run range have given the best results. Heavier woolen spun yarns have been used to achieve the same weight blankets with fewer picks, but in such blankets it is harder to secure the proper surface and performance. In a blanket of 100% Orlon with a woolen system spun filling yarn and a cotton or worsted system spun warp, the warp yarn should constitute approximately 15% of the total blanket weight. The remaining 85% available for filling yarns, when made up in a high pickage of two-to-three-run woolen spun yarns, gives a good surface for napping (see Table IV in construction section for suggested pick counts.)

Type of Weave

It is more difficult to achieve uniform cover in a single woven blanket fabric of Orlon acrylic fiber than in a double woven fabric. Two distinct surfaces (two sets of filling yarns) are presented for napping in a double woven fabric. The single woven blanket fabric contains one set of filling yarns from which nap for both sides of the blanket must be raised. Uniformity of cover and "pull through" which are problems with single woven blankets are controlled by napping technique. In final napping, two napping passes are made on one side, the fabric is then turned, and the final pass is made on the opposite side.

The 3 x 1 double fabric is the most satisfactory for blankets of Orlon because this weave exposes the maximum filling yarn in two distinct surfaces for napping. A blanket fabric can be produced in a 2 x 1 double weave, but more napping runs are necessary to achieve the same cover as the 3 x 1 double woven construction. When other considerations dictate that a single woven fabric is the only type that can be used, as in plaids, the suggested weave is a 2 x 2 broken twill.

Construction

A. Standard Bed Blanket Types

An excellent blanket can be produced from the following layout:

1. Fine woolen spun Orlon filling yarns (two to three run).
2. A high pick count (40 to 47 gray picks per inch).
3. A cotton spun warp of yarns of Orlon acrylic fiber (15/1 cotton count to 19/1 cotton count).
4. Sley of 26 to 33 gray ends (15 per cent of the total blanket weight in warp).
5. A 3 x 1 double woven fabric.

The blanket constructions suggested in Table IV will produce acceptable blankets. Constructions are ranked one (best) through five in descending order on the basis of performance. These constructions are offered as suggested starting points from which final construction details may be worked out.

B. Specialty Blanket Types

A single woven construction of woolen spun warp and filling yarns of Orlon acrylic staple is used to produce fancy multi-colored, stock dyed fabric styles such as plaids. It is possible to achieve the aesthetic and performance properties desired for blankets from this fabric, although it is more difficult than with the constructions discussed above.

Suggested single woven fabric constructions from woolen spun yarns are in Table V.

The best weave for a woolen spun single construction is a 2 x 2 broken twill weave. The broken twill eliminates the straight twill line which is visible in bankets made with the plain twill weave.

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How to design warp clip spots

By Victor Lobl

THE DESIGNING of warp clip spots as a means of decorating apparel fabrics is not usually considered a difficult task. Even beginners have little trouble in mastering the comparatively simple designing techniques and in grasping the manufacturing processes. Some of these processes may vary slightly with the type of fabrics being manufactured. They may also differ from mill to mill, due to different types of equipment, divergent views and varying ability among designers and mill personnel.

In general, however, the basic principles are the same for all standard fabrics of this type and the comments generally applicable. Some of these items have already been discussed in the previous article.* Others are discussed in the present chapter. Still others will be presented in the article to follow.

Form of Construction

Reference to the previous article and to Figures 127 a, b, c, d, e and f will show that the warp clip designs are produced by intermittent use of figure-forming extra warp yarn on a base construction. This base fabric is woven from the ground warp in the ordinary manner. The decoration is entered into the base cloth from a separate beam or beams usually mounted on the stand above the whiproll, which are commonly called top beams. The top beam yarn is used for the sole purpose of ornamenting the fabric. It does not add to nor detract from the wear strength of the cloth. If completely removed, it is not supposed to leave a gap or even a flaw in the base fabric. The fact that the ground and the decoration both weave from seperate beams, permits the use of either yarn system independently from the other to any desired extent.

In other words, the relative take-up between the two yarn systems involves no technical problem. Common warp clip constructions are produced with a top beam take-up of about 2-4% in contrast to 6-14% take-up for the bottom beam. In weaving the cloth of Figs. 127 the bottom beam contracted 9% as compared to 2½% for the top beam. The reason behind this differential is simply that the ground warp interlaces continuously, whereas the figuring top beam ends are used only as needed to produce the ornamentation. Between the spots the extra yarn is carried loosely without interlacing on the clip side of the cloth. This may be the face or back side of the fabric depending on the nature of the design. Later, in a successive operation, the needless yarn between spots is cut and sheared off. (See Shearing)

* April 1958 issue, p. 38.

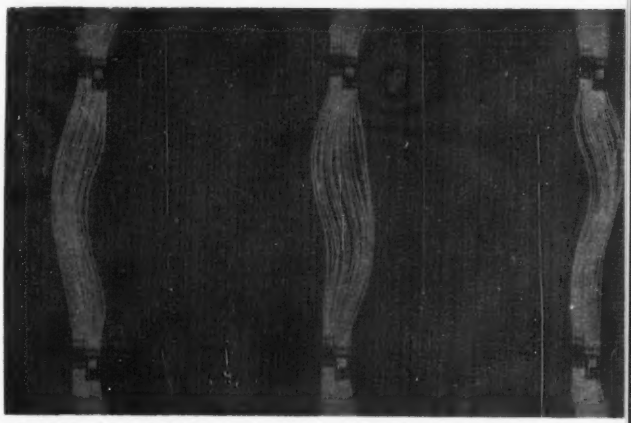


Fig. 127a—Gray cloth before loop cutting and shearing. It shows the floating extra warp between designs.

Fig. 127b—Gray cloth after loop cutting, but before shearing. The yarn bridge is severed.

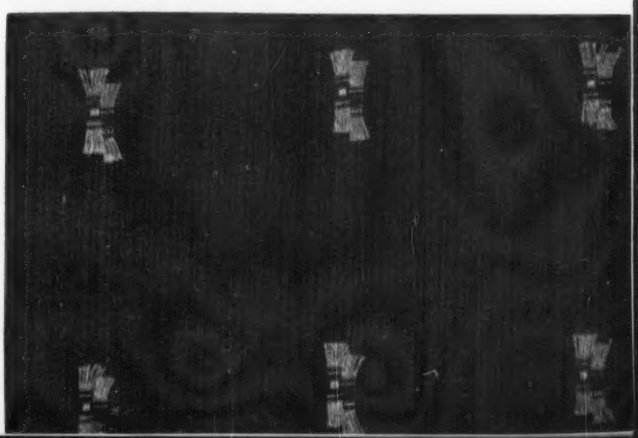


Fig. 127c—Gray cloth with the shearing completed. Note uniform cut, which was set to 5/32 of an inch.

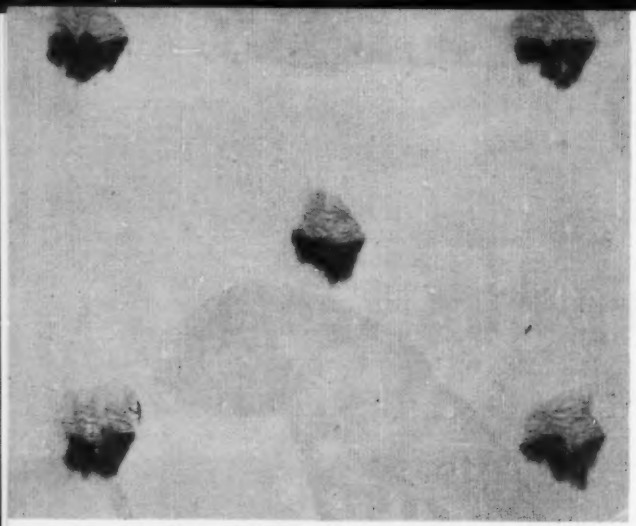


Fig. 127d—Finished cloth showing the fluffed-up loose ends. This condition, a result of various finishing actions, provides additional insurance against pull-out.

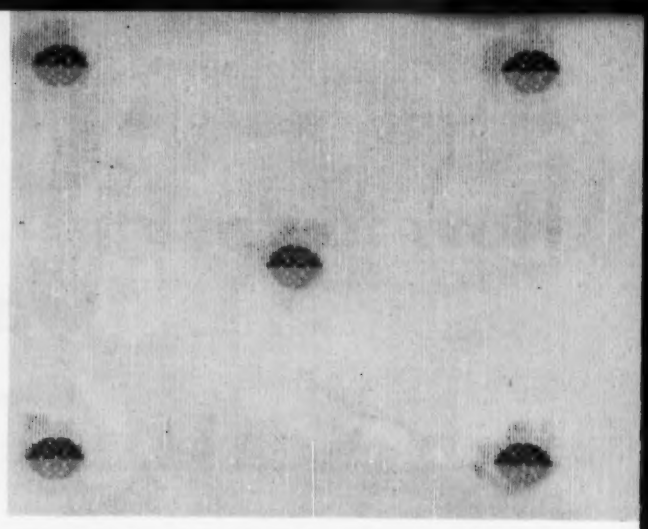


Fig. 127e—Face side of the finished cloth. The design shows a strong contrast in color. The contrasting color clip can be seen through the cloth, though it is not even sheer.

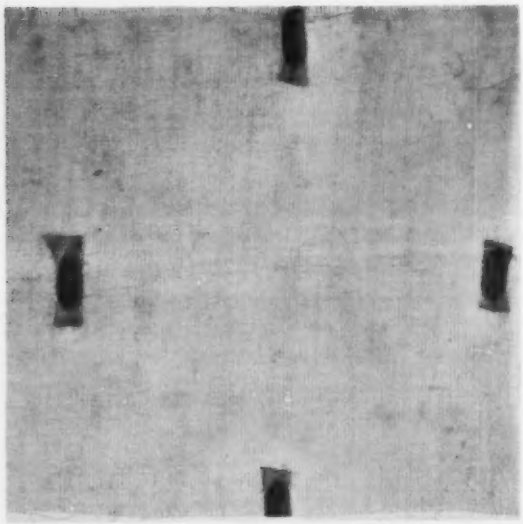


Fig. 127f—Warp clip on a sheer construction ground. The clip shows through prominently.

Color and Pattern Arrangements

With regard to colors, the general idea is to use a clearly distinguishing yarn for warp clip spots. Dark color spots are employed to ornament light backgrounds and light color spots are usually placed against dark backgrounds for the most effective contrast. If a clean spot is to be produced where ground does not show through, it becomes necessary to employ a much heavier yarn or a higher concentration of ends than that of the ground. It takes somewhat more ends or a heavier yarn for a light color spot to cover well a dark color background, than for a dark color spot to hide a light color background beneath it.

Any number of colors on color arrangements may be employed for this type of decoration. A good application of color is important. Even the best designers are easily ruined by unimaginative selection and distribution of color. In more recent years designers have put to test their individuality and technical competence with colorful bold forms. These designs often are so vigorous that they stand out on just about any background even on narrow stripes or small check patterns.

Solid color or striped fabrics can be enlivened effectively with clip spots scattered on them in either a regular or an irregular weave pattern. For box patterns the customary setting is to place the clip spot in the center of a large, otherwise bare check. Yet, in his desire to create new motifs the designer may choose to place the clip spot in one or more corners of the large check.

These design potentialities for structure and color effects have no limitations. For example, important factors have been achieved by panel arrangements. In the shirting line these bands are designed in different widths for use as breast, collar or cuff panels. The dress goods designer makes use of these panel creations in the production of bordered skirts or as extra collar and sleeve trimming.

Spacing of Warp Clips

The manner in which the extra warp is introduced into the cloth determines how the spots will repeat one above the other, a suitable distance apart. This distance is measured by the length of float between the spots, warpwise. Actually the shortest float is what counts and this has to be sufficiently long for satisfactory shearing. The minimum length float required for shearing varies from mill to mill, generally from approximately one to one and one half inches, depending on certain clipping conditions which we shall take up later.

Where staggered spot distribution is employed, each line must be counted separately. Floats several inches long can be sheared as well as the shorter ones. They need not be uniform in length. With regard to position and length of float, each end stands on its own.

Large spots need not be spaced farther apart than small ones. Very large all-over designs require somewhat more attention and take more time to shear than detached small figures. The decrease in linear production is proportionate to the bulk of yarn to be handled; similar to the way that higher density warp cause more frequent loom stops.

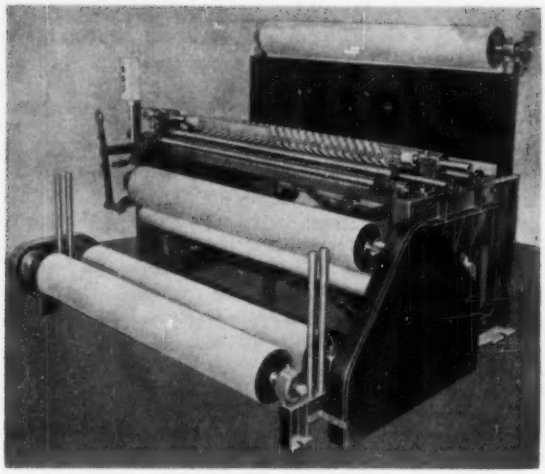


Fig. 128—Curtis & Marble Loop Cutter

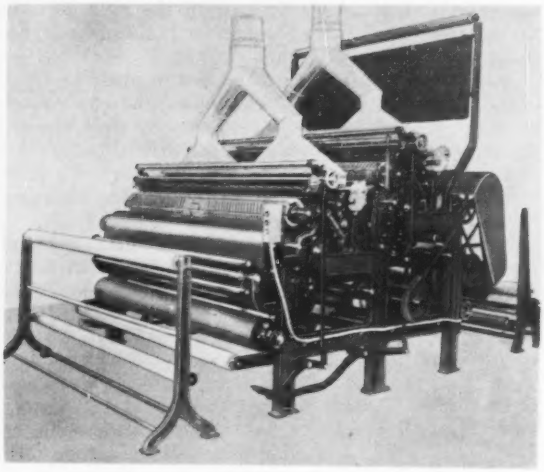


Fig. 129—Curtis & Marble Float Thread Shear

Shearing

The purpose of shearing clip spots is to remove from the cloth the excess yarn, which is floating between the figures. These long floats may become a nuisance in the end use if not cut away beforehand. In sheer cloth the extra yarn may show through to the face side thus presenting an unpleasant appearance. (Fig. 127-f) This condition is aggravated when the ground and the figuring warps are of contrasting colors as are most of the warp clips. Even heavy constructions which provide a good cover, such as drapery materials, are sheared to prevent the long loops from being caught or snagged in the subsequent finishing processes or later in the ultimate use.

A further point to consider with particular regard to apparel fabrics is that the surplus yarn, if not removed, adds needless weight to the cloth, which for most uses is undesirable.

There is much more to be said about the clipping and shearing processes, but before going into details it will be well to take a look at the machinery designed to perform this operation. For a designer to know what is practical to run at the mill, he needs to have a working knowledge of machinery used in producing the cloth.

The Loop Cutting and Shearing Machines

For warp clip shearing two types of machines are needed:

a. the loop cutter (Fig. 128)
b. the shearer (Fig. 129)

First the cloth is run through the loop cutting machine, or as it is erroneously called in many mills, the "Clipper," to distinguish it from the "Shearer". Actually the "Clipper" does not clip but it is built for severing the long floats between the spots preparatory to the succeeding process where, in reality, the excess yarn is clipped or sheared off. An up to date loop cutter is illustrated in Fig. 128.

The question may be raised as to the necessity of severing the yarn bridge between the spots before shearing. Here is the answer: In the movement through the shearer the cloth is held taut which has the effect of holding the yarn, intended to be cut away, closely to the body thereby avoiding contact with the shearer blades. After the bridge is cut open (Fig. 127b) the combined action of the brushes and air suction can lift the severed ends off the cloth into the path of the rotating blades, thus making a trimming possible.

The cutting is done by series of curved, exceedingly sharp knives which are bolted to a rapidly oscillating bar. From the illustration of Fig. 128 it will be noted that the knives are arranged to cut away from the center towards both selvages. They overlap in the middle of the bar. The bottom part of the knives is smooth to avoid damaging the cloth in contact with it.

Not discernible in the illustration is a rounded knob on the tip of each knife. These knobs press against the tightly held cloth and in their movement slide under the yarn bridges pushing them against the sharp edge of the knives for the cut. Knives with different shape and size knobs are available as required for various construction, designs and shear lengths. The latter is determined in a good measure by the width of the knob. The narrower the knob the closer it cuts to the woven figure and vice versa.

For example, when a cut length of 3/16″ is to be obtained, it is expedient to use a knob which cuts at least ¼″ away from the figure to allow for evening up at the shearer. Once the yarn bridge is severed the knives will not cut it again. Long floats between the spots permit the use of large knobs, whereas short floats require small knobs. In any case, the knobs must be wide enough and be shaped in such a manner as not to dig under longer floats in the figure itself. When such is allowed to happen, damage to the figure and to the cloth is inevitable. An experienced operator will change a set of knives in about 20-25 minutes.

Before reaching the knives, the cloth passes over a spreader roll. This is constructed to hold the cloth out to full width thereby removing undesirable wrinkles. A hand-lever is provided to disengage the cloth when a seam passes under the knives. In mills where this method prevails the operator has to be on guard to release the cloth when a seam approaches just in time to leave as little of it uncut as possible. Whatever part remains uncut has to be clipped by hand later or else wasted. Either of these alternatives

increases the net cost. Even with the best of care there remain 4-6 inches uncut on both sides of the seam.

A more efficient method of handling this problem has been developed by employing narrow stitch seams in combination with knife knobs wide enough to slip over the seams readily. When using this method the cloth need not be disengaged when a seam comes up and one operator is free to handle more than one machine.

Normal production rate of the loop cutter is about 10-15 yds/min. This depends on the length of floats, the volume of extra yarn and the type of goods being run. Spots further apart permit a faster linear speed than spots spaced closer together. The knife bar can be regulated to oscillate from 350 to 480 strokes/min. This again may be different with the various makes of machines. Usually not much advantage is derived from running the knife bar at an excessive speed. Most mills, after arriving at a suitable speed for their type of operation, seldom change it, though such adjustment is easily made on the newer type cutters. It is important that the blades be kept sharp because dull blades are likely to pull ends out to the wrong side of the cloth.

The Float Thread Shear

From the loop cutter the rolls of cloth are taken to the shearer where the excess material is trimmed down to the required length. A good view of a modern shearer is presented in Fig. 129. As the cloth moves through this machine the loose ends are first brushed up by revolving brushes. This brushing action is then supplemented with a powerful air suction right at the cutting line to elevate the loose yarn into the path of revolving razor sharp blades. Obviously, sufficient air suction at the right place is an important factor to the efficient shearing operation. Should the air velocity be inadequate or improperly directed, more than the usual trips through the shearer are necessary to even up the cut. Most mills require a uniform cut even in such fabrics where the clip is on the back side and not readily seen.

The blades are spiral shaped, very much like the grass cutting blades of the reel type lawn mower. Machines built with one to three blades are used for this purpose. The shearer illustrated in Fig. 129 contains two blades. By raising or lowering the blade setting the cut length of the clip is adjustable. Cuts too long or too short may impair the quality of the final product. Too close trimming may allow ends being pulled through to the wrong side causing an undesirable defect. On the other hand too long cuts blur the figure contour if it shows through the cloth as it does in sheer construction fabrics. Fig. 127f. A generally accepted standard for warp clip trimming is 3/16″ to 5/16″ from the body.

Warp clips are often given from three to six trips through the shearer to obtain an even cut. The number of trips required depends on the design layout, length of floats between the spots, the volume of yarn to be sheared away, but primarily whether the clip is on the face or back side of the cloth. Obviously where the clip constitutes part of the figure effect a more uniform trimming is desirable and such designs require additional evening up. A common practice is to run the cloth first in one and then again in the reverse driection. Productionwise, warp clips are sheared at a speed below 100 yds/min. At a higher rate of speed there is not always enough time for the air suction to raise the loose ends for the cut.

Many improvements have been made on shears in recent years. The newer type shears are equipped with automatic seam jumpers, while older models have to be tripped manually to admit passage of the seam under the blades. A welcome improvement, for it reduces the danger of seams being cut by the blades, decreases the untrimmed portion next to the seams and permits one operator to service more than one machine. It has been found that chain stitch seams trip the automatic jumper better than flat seams. Right above the blades, exhaust hoods will be noted. Through these hoods are sucked off the flocks cut off by the blades and carried to an exhauster. This arrangement prevents undesirable waste accumulation in the cutting section.

It should be noted that this article dealt solely with the shearing of warp clips. There are certain differences in the shearing of filling clips which we shall take up in a later article.

To Be Continued

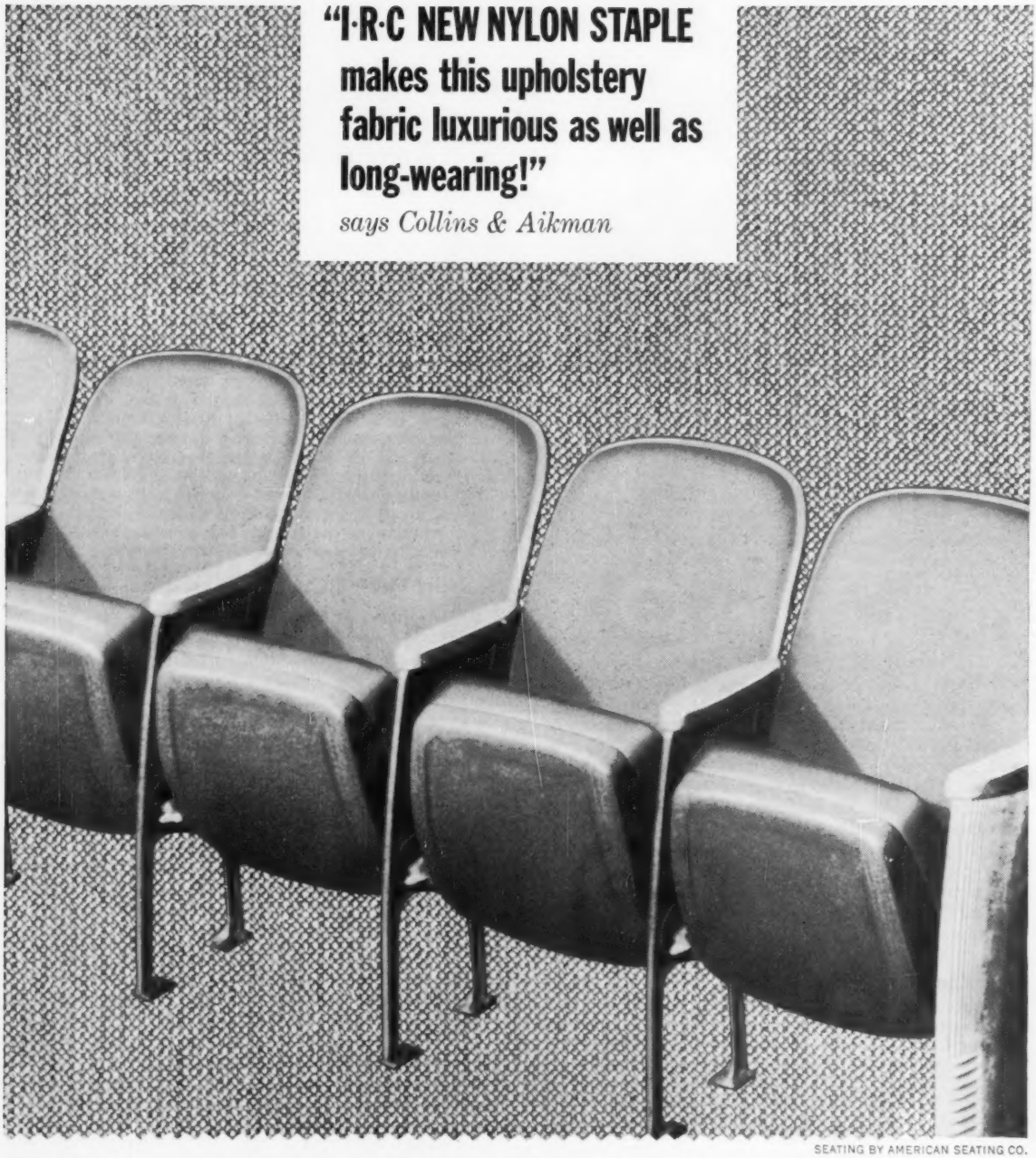
Nylon Opera Programs

Programs printed on nylon satin were used for the gala performance to celebrate this year's centenary of the Royal Opera House, Covent Garden, in London.

Lavish fabric programs, many of them remarkable works of art, were fashionable for special occasions 50 and more years ago. These nylon ones are the first to be produced for the Royal Opera House, London, since 1914.

The programs of pre-World War I were printed on silk. Those made for the Royal Opera Centenary are believed to be the first in which nylon has been used for the purpose anywhere in the world. The choice of nylon reflects the changing times and the respect that nylon has won, even in the British Royal family. As nylon is rot-proof and resistant to attacks by moths and insects, the programs are expected to last virtually for ever.

Queen Elizabeth and her husband, the Duke of Edinburgh, both received special nylon programs fringed with gold in presentation leather containers embossed with their personal coats of arms.



"I·R·C NEW NYLON STAPLE makes this upholstery fabric luxurious as well as long-wearing!"

says Collins & Aikman

SEATING BY AMERICAN SEATING CO.

Collins & Aikman's new "Lancer" upholstery fabric, shown here, is 100% nylon...but nylon with a difference. "Lancer" points up the new trend in fabric manufacture ...the use of nylon staple in spun yarns, rather than conventional nylon filament yarn.

Why this new trend? Because, as Collins & Aikman has found, IRC's *new* nylon staple now makes it possible to achieve the richness and elegance of traditional fine upholstery fabrics, and at the same time to retain the amazing durability for which nylon is so well noted.

At last the demands for both luxury *and* long wear can be met!

One further factor will interest manufacturers. IRC's *new* nylon staple has unusual dyeing characteristics that permit styling possibilities never before achieved.

For more information please call us!

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WIRE TIRE—Producers of rayon and nylon tire yarn with an eye to the future of their market will view with interest if not enthusiasm this new steel Goodyear truck tire intended for over-the-road use.

New Steel Cord Tire

The Goodyear Tire & Rubber Co, recently has introduced a new over-the-road truck tire built of steel cords instead of fabric plies. Called Unisteel, Goodyear said the tires may possibly have up to three times greater tread mileage. The tires are composed of one steel cable ply running radially from bead to bead, reinforced by three diagonal steel breaker piles. This construction is said to permit the tread to roll on the road without the wearing, scrubbing movement usually encountered in over-the-road tires. Flexing is confined to the tire's buoyant sidewalls, Because the tire requires a radical departure from conventional manufacturing methods, production may be limited at present, Goodyear reported.

Acetic Acid Expansion

Celanese has announced plans to double the capacity of its acetic acid plant at Pampa, Texas. Work on the multi-million expansion is slated to be completed by late 1959. Addition of the new facilities will enable the Pampa plant to produce 240 million pounds a year or 15% of the nation's total needs, Celanese stated. Acetic acid is a basic chemical and is used in manufacture of cellulose acetate, vinyl acetate, various acetate salts and acetic anhydride, and as an intermediate for many other chemicals and pharmaceuticals.

Carbon Wool Fiber

Barnebey-Cheney Co. reports it is now producing six standard types of carbon wool, pure carbon in fiber form. A number of special grades also can be prepared in a wide range of fiber diameters and in various physical or fabricated forms. Carbon wool's physical and chemical properties, according to the producer, include: fiber form, low ash, color absorption, sound absorption, resistance to high temperature. Its chemical inertness make it ideally suited for a wide variety of new and old process applications. *For further information write the editors.*

Rise in Tufted Carpets Noted

The volume of tufted floor coverings has sharply increased since the founding of the Tufted Textile Manufacturers Association 13 years ago, according to E. D. Lacey, TTMA president. Lacey recently stated that such coverings have "claimed some 56% of every dollar spent on soft floor coverings in the United States." Speaking at the national convention of the Duraclean Dealers of America in Chicago, Lacey said "a volume of near 70% of all soft floor covering sales has been forecast in the immediate future for the tufting industry." He pointed out that the tufting industry has contributed to the growth of other industries, including yarns, latex compounds, synthetic fibers, jute, chemicals, and cleaning processes.

Marlex Surgical Mesh

Marlex mesh, made of high-density polyethylene and developed by Phillips Chemical Co. from ethylene gas, has found new use as an inert plastic prosthesis that sets up very little foreign-body reaction. During the past year, in Houston, Texas hospitals, the mesh was used on 53 patients with large incisional or inguinal hernias, and in not one instance was it necessary to remove the prosthesis.

The high-density polyethylene already is being marketed as: clear film wrap, power mower parts, toys, kitchen and housewares, baby bottles, floating rope, shoes and pipe thread protectors. *For further information write the editors.*

New Metallic Yarn

"Superfine," a new metallic yarn said to have a soft hand and exceptionally high yield, has been developed by Metlon Corp. The new product a Mylar quality foil lamination, accepts both vat and yarn dyes and is resistant to carbonizing, vulcanizing and mercerizing. Superfine carries the Certified Washable Seal of the American Institute of Laundering. Metlon believes the new yarn will find a wide use in the manufacture of apparel fabrics. It is said to fabricate extremely well in fine jacquards and sheers and is also being used in knit goods, where it can run easily on all types of circular and flat machines. It can be woven directly from the spool and no supporting yarn is needed, the producer reports. *For further information write the editors.*

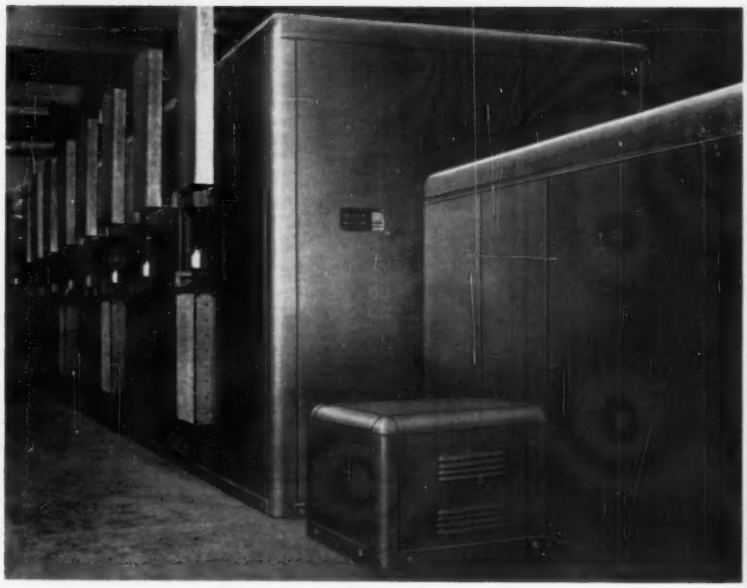
Prevents Trailer Roof Leakage

Haartz-Mason, Inc., is marketing in kit form a new product designed to eliminate leaking roof seams in metal-top trailers, The product, "Nylo-Flex," employs neoprene-coated nylon tape and urethane foam, and is engineered to weatherproof seams for the life of the trailer or until a new roof is required for some reason other than leakage, according to Du Pont's Product Information Service. Subsequent roof punctures may be easily sealed with a small piece of the tape. *For free pamphlet write the editors.*

Bonded Nylon Interlining

Ny-Sul-Loft, an all-nylon permanently bonded material usable either as apparel interlining or innerfacing, has been placed in full production by Star Woolen Co. The product can be washed or dry cleaned, and also is being used in shoulder pads, sleeve heads and coat fronts. Tests are said to show Ny-Sol-Loft to be superior to polyurethane in many respects, including freedom from discoloration, and to retain pliability at temperatures as low as 40 degrees below zero C. *For further information write the editors.*

DYEING and FINISHING SECTION



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Evidence of the outstanding efficiency and economy of this "National" drying unit is found in the number of existing and on-order installations among the Nation's leading chemical manufacturers.

Increased drying capacity per square foot of surface; improved uniformity of dried product; much easier apron cleaning; greater efficiency and accessibility of gas or steam heaters; and a generally neater machine to operate and maintain, are characteristics of this drying system resulting from unique and exclusive features of "National" design, construction, operation and control.

The same type of dryer is used for the drying of starch, rubber crumb and a wide variety of chemicals and pharmaceuticals.

The following well-known companies are among the current users of "National" Perforated Apron Conveyor Dryers:

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NATIONAL ANILINE DIVISION, ALLIED CHEMICAL & DYE CORP.

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BLEACHING
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Nonwovens (Continued from Page 32)

100% of the weight of the bonded and finished fabric.

In using cotton cards for the production of nonwoven fabric each card may deliver as much as 35 lbs. an hour, with web weights ranging from 35 to 100 grains coming off at speeds of 45 to 200 ft. a minute. Both fillet and metallic wire are used on either revolving flat or roller top cotton cards. Which arrangement is used has been largely a matter of personal choice governed principally by what is available to a particular mill. With the installation of new equipment purchased solely for the production of this web material, much more thought is being given to these manufacturing details.

Platt Converter

An interesting web forming machine that is attracting attention from some nonwoven fabric manufacturers is the Platt Lap Converter. This machine is unique in that it employs a roller doffer permitting higher operating speeds than possible with the conventional comb-doffer. With this 40" machine we at American Viscose have taken off webs ranging up to 100 grains per square yard in weight. Production may better 75 lbs. an hour and speeds up to 100 yards a minute. The fibers of the web are more interlocked than is customary with cotton card webs. These features, together with its price, which is under that of the cotton card, make it especially attractive.

Garnetts and Woolen Cards

Garnetts and woolen cards have a seeming advantage over cotton cards because they can deliver greater poundage in widths up to 100 inches. They are more versatile in that they can handle a greater variety of fiber descriptions with satisfactory uniformity, with less parallelization of fibers so as to step up transverse strength of the web. Production rates will vary with the type of fiber, weight and quality of web and speed.

It is not unusual for woolen cards to produce webs of satisfactory quality at 65 to 150 lbs. an hour, with web weights in a range of 200 to 350 grains per square yard. Garnetts may operate at twice this rate. However, the initial machine cost of garnetts and woolen cards runs considerably higher than that of cotton cards. The wider widths possible are a distinct advantage and open up many markets which the 40" material from cotton cards cannot touch.

If it is preferred, the wide web as produced on garnetts and woolen cards may be slit at the doffer into two or more equal widths and delivered, one upon the other without cross laying, as a single composite narrower sheet.

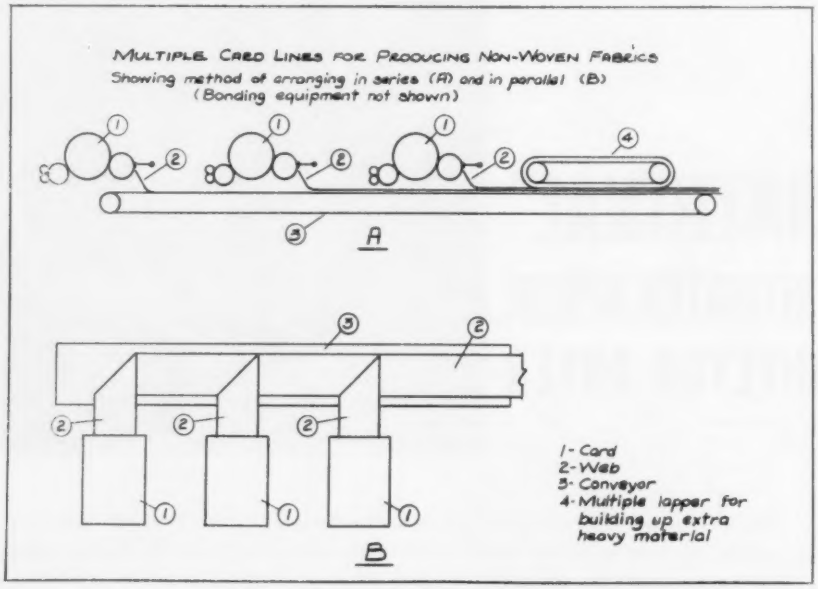
MULTIPLE CARD LINES FOR PRODUCING NON-WOVEN FABRICS
Showing method of arranging in series (A) and in parallel (B)
(Bonding equipment not shown)
A
B
1- Card
2- Web
3- Conveyor
4- Multiple lapper for building up extra heavy material

Fig. 1

Cross Laying

Possibly the most popular means of taking off the web from a garnett is through a cross web laying method similar to that in Figure 2. This permits delivery, from a single, two or three cylinder garnett, of fiber mats ranging from 2 oz. to 16 ozs. a sq. yd. in widths up to 100 inches. This method also provides a means of securing a more balanced strength in both longitudinal and transverse directions, thus overcoming one of the principal criticisms of many nonwoven fabrics. The relative delivery rate of the web to the speed of the conveyor governs the angle of the cross lay and weight of the mat.

In addition to the web shown being fed crosswise to the conveyor, it may be found desirable to lay in from an additional garnett a web, not shown, moving in the same direction as the conveyor, thus providing a smooth unbroken surface on the composite fabric when bonded. In Figure 2, also is shown a means of bonding the web, when composed of a blend of potentially adhesive and non-adhesive fibers, by passing it around the heated cylinder under controlled pressure supplied by the blanket and adjustable squeeze rolls.

Nonwoven fabrics produced by this cross laying method have been characterized by more or less prominent diagonal streaks from overlapping portions

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460-S

of the web. These streaks may be quite objectional for many uses, especially in the lighter weight materials. This deficiency was early recognized and means were developed to cross lay, at right angles, adjacent light weight web sections over a continuous longitudinal web[4]. Methods were also developed for further improving the strength of carded webs by subjecting them to a drafting operation to better align the fibers[5].

fabric, with equal strength in all directions, is of advantage for many uses. Methods of producing randomly dispersed fibrous mats, by utilizing a combination of carding and air suction delivery principles, have long been known[6]. More recently the Curlator Corp. has placed on the market a machine designed especially for the production of random laid fiber mats, said to range from around ½ oz. to 10 ozs. a sq.

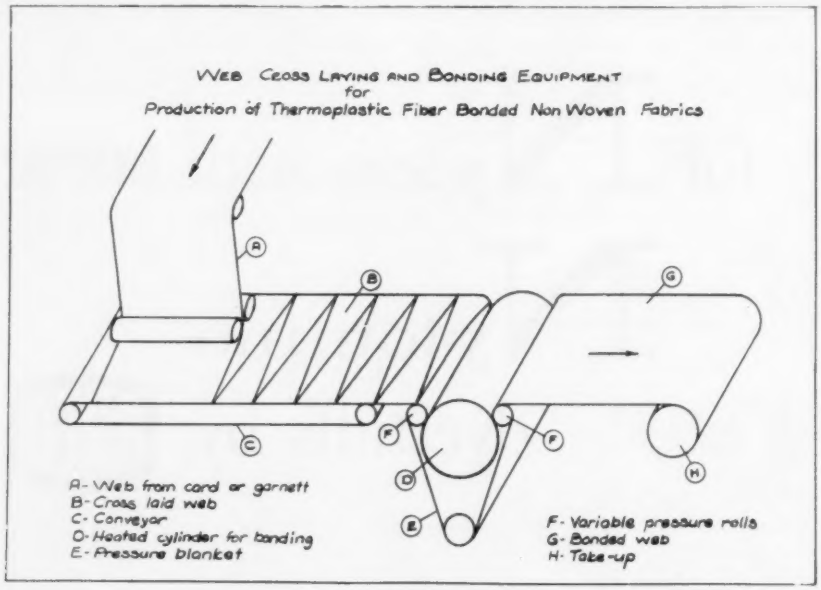

WEB CROSS LAYING AND BONDING EQUIPMENT
for
Production of Thermoplastic Fiber Bonded Non Woven Fabrics
A- Web from card or garnett
B- Cross laid web
C- Conveyor
D- Heated cylinder for bonding
E- Pressure blanket
F- Variable pressure rolls
G- Bonded web
H- Take-up

Fig. 2

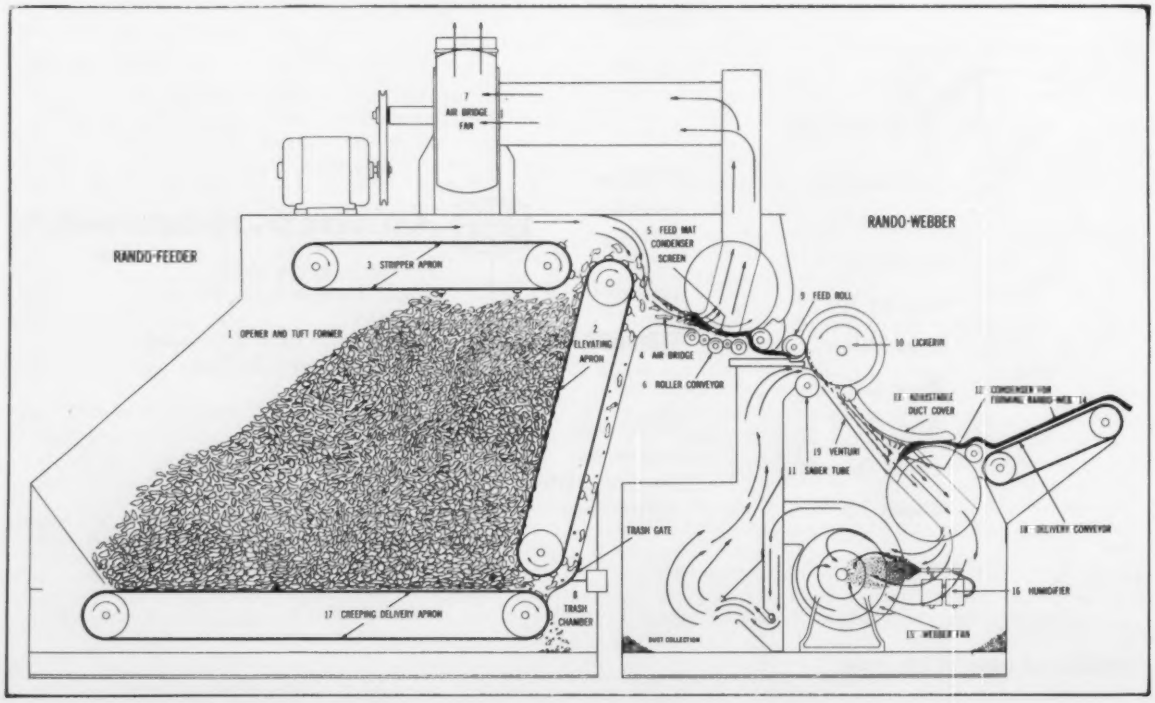
Aerodynamic Methods

Drafting and cross laying the web offers a means of producing a high strength nonwoven fabric with equal strength in longitudinal and transverse directions, closely approaching woven fabric in some features. Yet, it is felt by many that a random fiber

yd.[7] A flow diagram of this unit is shown in Figure 3.

A novel feature of the Feeder of this unit is the air bridge by which the fiber is carried into the wedge shaped opening in the screen box, between the air screen and the roller conveyor by means of forced air suction which is satisfied when the wedge is

Fig. 3—Schematic flow diagram of combined Rando-Feeder and Rando-Webber.
(Patents pending and/or granted in U.S.A. and foreign countries.)



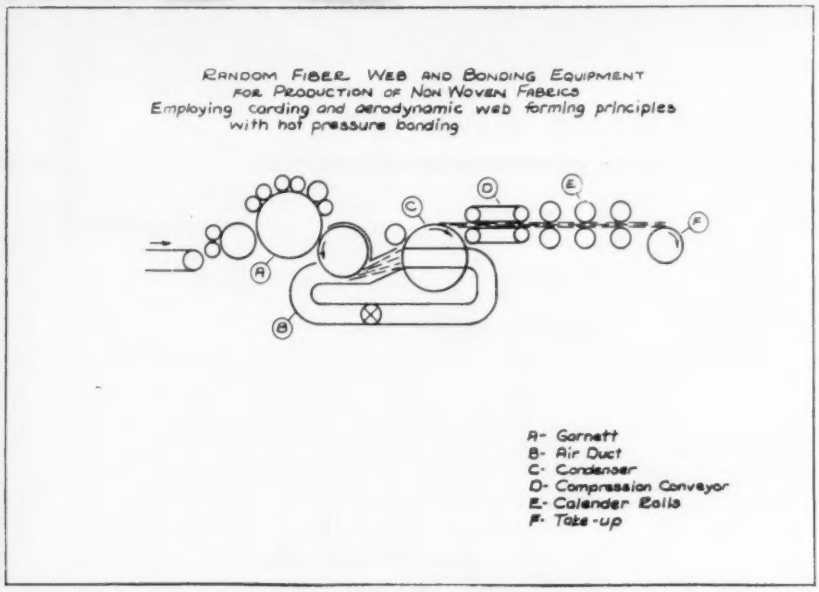


Fig. 4

completely filled. Surplus fiber recirculates on the pin apron until the suction automatically increases with the rate of removal of the fiber at the delivery end of the wedge. Thus, a uniform heavy mat feed is always insured to the feed roll of the Webber. The operating principal of this Feeder seems to form the fibers into a series of tufts in many instances which are difficult for the Webber to open and form into a clean light weight uniform web.

The fibers in the tightly compressed mat from the Feeder are plucked from the feed plate of the Webber by the metallic teeth of the high speed lickerin. Then they are sucked by high velocity air through the constricted throat of the venturi-like duct and deposited more or less uniformly on the circular screen of the condenser as the air passes on through to be humidified and recirculated. The random fiber web flows continuously from the condenser to the rubberized delivery belt for subsequent bonding and finished as preferred.

It is to be observed that very little opening or carding action takes place other than as provided by the pins of the feed apron in the Feeder and the lickerin of the Webber. The quality and fineness of the web produced will therefore depend a great deal upon the type and condition of the fiber being processed.

For light weight uniform webs it seems advisable to precard the fiber or give it several passes through the Webber. This random web unit has been placed on the market in 40", 60" and 84" widths with rated capacities up to 400 lbs. an hr. Quality will depend on the type of fiber being run, the speed and the weight of the web being produced.

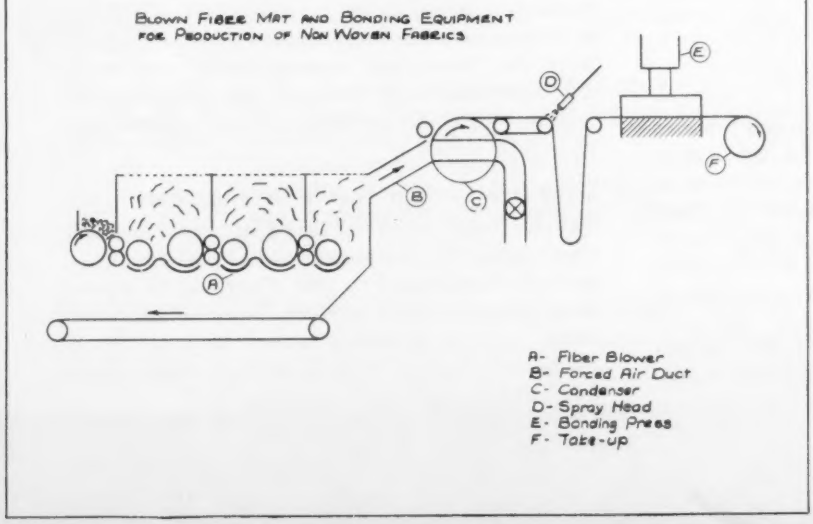
Other methods have been devised for air processing the fibers and laying up the webs for producing bonded fiber fabrics. For the most part these are designed for handling special fibers or with specific end uses in mind[5, 9]. A means for providing additional carding action to separate the fibers and produce a light weight air laid web of good uniformity is shown in Figure 4.

A method of utilizing short fibers to aerodynamically form webs for the production of isotropic nonwoven fabrics is illustrated in Figure 5. This arrangement makes use of a fiber blower, of a type used in the fur felt hat industry, consisting of three or more sections with each section having a pair of feed rolls, lickerin and condenser cylinder. The preopened fiber from the hopper is taken by the feed rolls of the first section and freely dispersed within the confines of that section by the high speed of the lickerin, and collected on the wire condenser cylinder for transfer to and similar working in each succeeding section of the blower. From the blower the well dispersed fiber is air borne, through a forced air duct, to the web condenser from which it is belt conveyed to suitable bonding equipment.

Web Modifications

Some of the latest thinking in the manufacture of nonwoven fabrics goes beyond formation of a conventional solidly distributed fibrous web. Pattern effects are now being built into the web formation by spreading and contracting the fibers in selected localities. Passing the treated web, prior to final bond setting, over short "pin" rolls offers a means of doing this. Modifications of the conventional needle loom also seem to offer considerable attractive possibilities in these respects as well as for providing additional strength in depth or resistance to delamination in the thicker materials.

Fig. 5



(To Be Continued)

REPORT FROM EUROPE

By SPECIAL CORRESPONDENT

UN to Study Fiber Outlook

GENEVA—Major producing and consuming countries will meet under auspices of the United Nations in New York next March 9 to examine commodities—prices, production and international trade. What could be an important meeting from viewpoint of textile industry at that time will be a study of impact of man-made fibers on natural fiber textiles.

The UN Commission on International Commodity Trade will also look into the long-range prospects for supply and demand of cotton, wool, flax, coire, jute and other major commodities. The commission will try to recommend solutions to the problem of "instability of foreign markets," as it was stated by Phillipe de Seynes, UN Undersecretary for Economic and Social Affairs. One argument to watch will be that offered by world's cotton producers to protect low prices due, they will probably say, to U. S. policies and man-made fiber competition.

New Industry for Austria

The Montecatini General Mining and Chemical Corp., of Milan, will join up with Stickstoffwerke AG, of Linz, to build a factory near Vienna to produce petrochemicals, including 11 million pounds yearly of polypropylene. This is expected to boost Austria's capacity to produce home furnishing fabrics and industrial textiles.

The new company will be named Danubia Petrochemie AG. Montecatini will own 40%, Stickstoffwerke another 40% and the Austrian Government the remaining 20%. Italian oil refineries initially will supply the raw materials, but Austrian plants will meet supply needs a few years hence.

German Polyester Expansion

Farbwerke Hoechst AG has announced plans to expand its Trevira polyester section in 1959 to three times present output. Trevira has found a big market in the men's lightweight suit field . . . . Hoechst's Institute for General and Textile Market Research found that 75% of all lightweight suits sold this past summer were made of wool-synthetic blends. The institute surveyed 300 West German stores. More than 90% of the suits were in the 55/45 polyester-worsted blend. Average price was about $37.

Perlon Hose Sales Shaky

Branded and unbranded hoisery manufacturers are battling it out for the German domestic market, and prices have been sliding downwards for the past several months. Meanwhile, the hoped for export boom in German hose sales has failed to materialize. Recent introduction of a below 50¢ a pair perlon hose, compared with the previous $1 branded line has shaken suppliers. Some unbranded lines have been retailed as low as 35¢. Big danger is that the branded lines could lose their hold on the market.

German Men's Wear Promotion

West German manufacturers of men's outerwear will launch a $375,000 promotional campaign in February "to combat decreasing expenditure for men's ready-to-wear items." Manufacturers will contribute 50¢ for each $250 sales. Retailers will lay out 5¢ per suit or coat, 2½¢ per jacket, and 1¢ per pair of pants . . . . And in West Berlin, a new group, Herrenmodekreis (Men's Fashion Circle), was set up to "further the importance of the members in the international men's wear field."

British Nylon Makes News

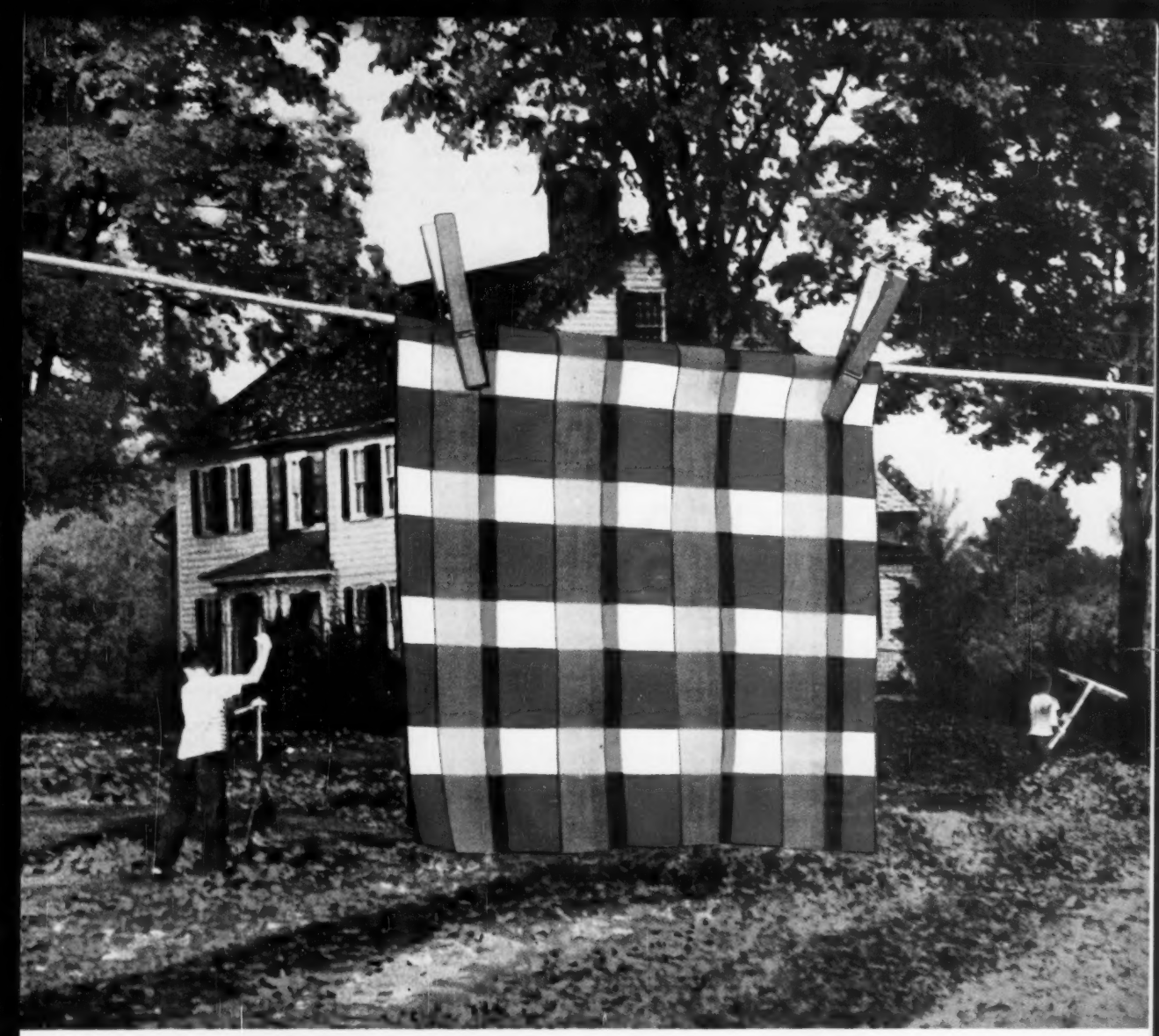
Taylor-Woods Hosiery Ltd. is claiming that its "Lifelon" hosiery is "virtually run and snag-proof." They began entering London shops toward the end of last month and are expected to be available for export. Price is about $2.50 a pair. The stockings use a knit and lock stitch, are seamed and cut to shape. They have reinforced platings.

British Nylon Spinners has been turned down by the Board of Trade on its application to build a 10 million pound sterling nylon plant at Havant, in Hampshire. The board said this area does not have the "persistent unemployment" where industrialization is encouraged. The company will look into an alternate site for its third plant to employ 2,000 persons.

Some Iron Curtain Textile Developments

Under Rumania's Five Year Plan, two man-made fiber plants, with an annual capacity of 7,000 tons, are to be constructed by 1960. They will be located near Bucharest and produce a polyamidic yarn, Relon, said to be like Russian "Kapron," U. S. nylon and German perlon. Relon is said to have unusual heat resistance qualities.

(Continued on Page 67)



Meet the demands *of today's Wash and Wear fabrics*

Geigy

200 years Geigy

In a recent issue of Good Housekeeping Magazine there was an article which stressed the importance of, and the growing trend toward, Wash and Wear fabrics. It set up standards for the consumer on what to expect from, and how to care for, such fabrics.

The importance of dependable Wash and Wear fabrics again brings into focus the Cuprophenyl Colors as produced by Geigy.

For this unique series of direct colors, with their ease of application in conventional equipment, and simple after-treatments, can help you produce the required light and wash fastness to meet today's discriminating market in the Wash and Wear field.

You'll find Cuprophenyl Colors extremely important in the dyeing of many of the blends of cotton or rayon with acrylic or polyester fibers.

Check list of colors below. Technical bulletins of your selections will be sent by return mail.

GEIGY DYESTUFFS—Division of Geigy Chemical Corporation, Saw Mill River Road, Ardsley, New York. Branches in all textile-producing centers. Dyestuff makers since 1859.

Cuprophenyl® Colors

Check this list *for the color that fits your needs, and mail today!*

Cuprophenyl Red BL
Cuprophenyl Rubine RL
Cuprophenyl Yellow 3GL
Cuprophenyl Yellow RL Extra 200%

Cuprophenyl Green 2BL
Cuprophenyl Blue 3GL
Cuprophenyl Brilliant Blue 2BL
Cuprophenyl Navy Blue BL

Cuprophenyl Navy Blue BRL
Cuprophenyl Navy Blue RL
Cuprophenyl Violet 3RL
Cuprophenyl Brown GL

Cuprophenyl Brown 2GL
Cuprophenyl Brown 6GL
Cuprophenyl Brown 2RL
Cuprophenyl Yellow Brown RGL

Cuprophenyl Black GL 200%
Cuprophenyl Black RL 200%
Cuprophenyl Grey 2BL 300%
Cuprophenyl Grey GRL

For the DYER and FINISHER

Textile Finishing Agent

Allied Chemical's Semet-Solvay Petrochemical Division has issued a new 16-page booklet describing emulsifiable A-C polyethylene 629 as a textile finishing agent. The brochure lists product properties, instructions on the preparation of emulsions, suggested formulations, how to manufacture large-scale batches, and applications methods. The emulsion is said to improve hand, tear strength, crease recovery, abrasion resistance and sewing rates for fabrics treated by it. *For free copies write the editors.*

Color Analyzing

National Bureau of Standards' scientists in Washington have devised a method of analyzing colors through use of a recording spectro photometer and a high speed electronic computer. The former instrument inspects a swatch of material and plots a graph of the proportions of red, orange, yellow, green, blue and violet that it reflects. This information is fed into the computer and an expression of the color curve is obtained in figures. A technical description of the color could thus be sent by telegram.

New Pleating Process

Chemstrand Corp., producer of Acrilan acrylic fiber and nylon, has announced development of a new method of pleating chemical textile or thermoplastic fabric blends. The "ChemPleat" process is said not only to appreciably reduce puckering, rippling, etc., of such fabrics, but also produce sharper and more durable pleats. Chemstrand reports the process does not require the use of additional machinery. *For further information write the editors.*

Cationic Dye Leveler

Nopco Chemical Co. has introduced Nopco 1425-B, a dye leveler for acid colors on nylon tricot and wool. The product is a liquid cationic surfactant that is said to level acid dyestuffs (including milling and premetallized acids) as well as direct and vat colors. *For free copies of data bulletin TX-34, write the editors.*

Ciba Durable Finish

Ciba Company, Inc., is marketing Phobotex FTA, a new durable finish said to be effective on all natural and man-made fibers. It may be applied alone or in combination with the urea formaldehyde or melamine formaldehyde resins for spot resistant, fully water repellent, drip-dry, or wash and wear finishes. Phobotex FTA is supplied as a soft waxy material which is 100% active. *For further information write the editors.*

Antistatic Lubricant

Nopcone AR, antistatic lubricant for processing synthetic filament yarns, is described in a technical bulletin issued by Nopco Chemical Co. The product is a balanced coning oil approved for use on yarns such as Taslan and Ban-Lon. *For free copies of the technical bulletin write the editors.*

Retarding Agent

Ciba Company, Inc., has introduced Retarder A Ciba, a retarding agent said to cause Orlon and Acrilan dye to be held in the bath through the early stages and then released at a uniform rate through the remainder of the dyeing cycle, thus permitting good exhaustion of the dye bath. The new product may be used with basic or cationic dyes when dyeing Orlon 42 and Acrilan 16. *For further information write the editors.* (Continued on Page 52)

HARTFORD

AUTOLATCHING BOBBIN HANGER

takes all sizes of packages from 8x4 to 12x7

- Positive latch — easier creeling — low cost
- Simplifies cleaning
- Free-running ball construction
- Side brake available for proper tension

HARTFORD MACHINE SCREW COMPANY

DIV. OF STANDARD SCREW CO. BOX 1776, GREENVILLE, S.C.

Orlon Blankets

(Continued from Page 36)

Width Loss Allowance

A. Regular Shrinkage Staple

When a blanket of Orlon acrylic fiber is laid out, an allowance for 20% width loss from reed width to finished blanket width should be made. The exact percentage of width loss should be determined for each mill, based on its equipment and its preferred construction. Due to width limitations on some blanket looms, it may be necessary to condition the filling yarn, or the staple, at 200°F. dry bulb temperature and 195°F. wet bulb temperature for one hour to reduce this width loss from 20% to approximately 12%.

B. High Shrinkage Staple

The use of high shrinkage Orlon acrylic staple reduces shedding and improves cover and bulk in blankets. This type has a dense nap, but the surface is achieved with greater napper energy than is needed with regular shrinkage yarns.

A minimum of 33% high shrinkage fiber in the woolen spun filling yarn blend is necessary to maintain a uniform blanket width. This percentage of high shrinkage Orlon offers the optimum in blanket performance.

High shrinkage Orlon can be used in the filling yarn blend by mills having wide looms and which can allow approximately a 30% decrease in width from reed width to finished blanket width. With high shrinkage Orlon in the blend it is necessary to reed out to approximately 100 inches to obtain a 72-inch finished blanket width.

Blends of Orlon and Wool in Blankets

Blankets with excellent properties can be produced from blends of Orlon and wool. Thirty percent or more Orlon in a blend with wool gives the blanket dimensional stability in home laundering.* The higher the percentage of Orlon acrylic staple in a blend with wool, the more luxurious the hand, the better the cover, and the greater the blanket durability. These blankets can be produced in constructions three and four in Table IV and in Table V.

TABLE IV

DOUBLE WOVEN BLANKETS OF 100% ORLON
(Blanket Dimensions—72" x 90"
(Blanket Weight—3¼ lbs.)

Construction	Warp Count & Twist	Filling Count & Twist	Reed Width	Weave
(Notes 1, 2, 3)				
1. 33 x 47	18.1 c.c.-12.5Z	2.9 run - 6Z	90 inches	3 x 1 Double
2. 34 x 42	18/1 c.c.-12.5Z	2 run - 7Z	89 inches	3 x 1 Double
3. 26 x 42	5 run - 10.5Z	2.6 run - 6Z	89 inches	3 x 1 Double
4. 26 x 33	5.5 run - 11Z	1.75 run - 7Z	89 inches	3 x 1 Double
5. 34 x 33	18/1 c.c.-12.5Z	1.6 run - 7Z	89 inches	3 x 1 Double

Notes: 1) The above blanket constructions are based on a finished blanket weight of 10.1 ounces per square yard.
2) Increasing the pickage on the above constructions increases the blanket weight and improves the blanket performance until a weight of 15 ounces per square yard is reached; in weights over 15 ounces per square yard the blanket has a boardy hand with no additional iprovement in properties.
3) A marked reduction of the pickage in the blanket constructions usually results in filling slippage during napping.

TABLE V
SINGLE WOVEN BLANKETS OF 100% ORLON

Gray Construction	Warp and Filling Count and Twist
20 x 31	2 run 7Z
18 x 25	1.8 run 7Z
18 x 20	1.4 run 7Z

Note: These constructions are offered as starting points for evaluation by which each mill may find its own most suitable combination.

Dyeing and Finishing

The dyeing and finishing of blankets of Orlon was reported in detail in an article by K. D. Houser and L. Bidgood, Jr. of the Du Pont Co. in the November, 1957, issue of this magazine, Page 50. Therefore, this will be only a brief summary of dyeing and finishing techniques which have been developed for these blankets.

A. Dyeing

Blankets of Orlon are either piece dyed or stock dyed. Piece dyeing is used for solid shades and stock dyeing for fancy patterns. Disperse dyes are used for the pastel shades and cationic dyes for all others.

The gray fabrics, as received from the weave room, are scoured, dyed (piece dyed only), softener is applied, and the fabrics are dried.

B. Napping

Before napping blanket fabric of Orlon, one to two percent of a cationic softener, such as Avitex N.A., is applied for a softer hand, antistatic protection, and easier napping. After the softener is applied, the fabric is vacuum extracted and framed taut to reduce processing shrinkage. Generally, blanket fabric is dry napped. Although it is possible to finish the blankets

* Du Pont Peckham Patent.

(Continued on Page 53)

Dyeing Notes

(Continued from Page 50)

Effective Bacteriostatic Finish

Eversan, a new bacteriostatic finish for textiles, said to remain effective for even up to 50 washings, has been placed on the market by Ions Exchange and Chemical Corp. The finish can be applied to cotton, wool, rayon and a number of synthetic fabrics. Eversan is reported to inhibit the growth of odor-forming and perspiration decomposing microbes and a broad spectrum of other bacteria by actually fixing a bactericidal metal atom within the cellulosic or keratinic molecule of the textile's own fibers. *For further information write the editors.*

Anti-Static Coning Oil

Nopco Chemical Co. has published a technical bulletin describing its Nopcone, LV, an anti-static coning oil effective on all synthetic yarns. The product is a light-colored lubricant with nonyellowing and low frictional (fiber-to-fiber and fiber-to-metal) properties. *For free copies of the bulletin write the editors.*

Kromfax Solvent Data

A new and revised bulletin on thiodiglycol, marketed as Kromfax, has been issued by Union Carbide Chemicals Co., a division of Union Carbide Corp. Kromfax is a non-volatile, water-soluble, chemically-neutral liquid said to have high solvent power for vat, basic and acid dyestuffs. It can be used to prepare superior printing pastes from vat dyestuffs and is also useful in the synthesis of synthetic lubricants having "built-in" anti-oxidant properties, as well as in the synthesis of additives for lubricating oils. *For free copies of the bulletin write the editors.*

Alkyl Aryl Sulfonate

Laurel S.D. 50, an amine neutralized alkyl aryl sulfonate of high activity, is prescribed by the Laurel Soap Manufacturing Co. for a wide variety of uses in the textile and other wet processing industries. Applications include: direct dyeing of cottons and rayons, acid dyeing wool, acetate dyeing, scouring of woolen piece goods and light scouring of cotton and synthetic yarns and fabrics, for soaping off after dyeing, as a wetting agent in starch desizing baths, and as a penetrant for coning, winding and after-treating emulsions. *For free samples and further information write the editors.*

Cationic Emulsifier

Emkay Chemical Co. has announced development of Emkabase CA, a new cationic emulsifier for mineral oil. The new product is a clear, bright oil which can be mixed with 10 parts of its own volume in mineral oil to produce a bright mixture, dispersible in water. Its substantive nature is said to permit water dispersions of Emkabase CA and mineral oil exhaust onto many surfaces, fibers and fabrics. *For further information write the editors.*

Procion Rubine B

Arnold, Hoffman & Co. has extended its established Procion range with Procion Rubine B, a new homogeneous reactive dyestuff. Rubine B produces shades of high light fastness on cellulosic fibers, on which the shades also have high wash fastness and, in the case of cotton, good chemic fastness. The new dyestuff is applicable for fast-to-light pinks, bluish reds and bordeaux shades, and in general as the red component in mixtures. On nylon, Rubine B gives fast dischargeable shades. *For further information write the editors.*

Anionic Surfactants

Antara Chemicals Sales Division of General Aniline & Film Corp. has issued a 16-page booklet on the properties and uses of the firm's Igepon series of anionic surfactants. *For free copies write the editors.*

STANSET

FOR Standout Wash'N Wear

with Stanset chemical reactor resins, your fabrics:

- ACHIEVE MECHANICAL AND CHEMICAL FINISHING EFFECTS WITH LASTING WRINKLE AND SHRINK RESISTANCE.
- STAND UP AFTER REPEATED LAUNDERINGS.
- RETAIN THEIR APPEARANCE AND SHAPE FOR GREATER LENGTH OF TIME.
- "LOOK YOUNGER LONGER."

Many of STANSET's friends are enthusiastic about the above features of STANSET and also about the extremely low tensile loss due to chlorine bleaching, as well as its superior non-yellowing characteristics.

There are other features about STANSET chemical reactor resins you *should* know. If you would like to receive additional material regarding STANSET, write us — we'll be glad to send it to you. There's no obligation. Remember — the sooner you learn about all of STANSET's excellent characteristics, the sooner you can put them profitably to work for you.

STANDARD CHEMICAL PRODUCTS INC.

HOBOKEN, NEW JERSEY • CHARLOTTE, NORTH CAROLINA

Master Marketer

(Continued from Page 34)

the closest kind of relations between sales office and mills. He has made it one of his most absorbing and crucially important tasks to see that these close relations are maintained between the numerous Callaway mills in the LaGrange area and the company's head sales office in New York which is Williams' headquarters. To get the close co-ordination he wants, Williams has spent at least *one week out of every month in LaGrange for the past 20 years.* While there, he confers with Callaway Mills Company president Arthur Edge, Jr.; with the research and development people working on new fabrics and new designs for established lines; with production executives discussing their needs and problems, and planning production schedules. Williams' opinion and concurrence is required before any major investment in equipment for the Georgia mills is made—a practice that seems pre-eminently sound when it is remembered that it is Williams and his marketing organization that will have to find the customers for whatever the new equipment will produce.

Along with his regular sojourns in Georgia, Williams does a great deal of additional traveling. He believes in keeping himself informed by personal contacts and by seeing for himself how Callaway's salesmen throughout the United States are doing. He also believes it is good to keep in touch with the customers by making calls himself. (His associates say that, in spite of all his other duties, Williams is a terrific salesman still.)

A plain-speaking man who is easy to talk to, and easy to see—his subordinates say that they can never remember seeing his office door closed—Williams says that there is no magic in successful textile marketing. To move goods today, he emphasizes, the markets they are to be sold in must be researched; then a product must be properly conceived to fit this market, styled right, made right, and then realistically priced. If that is done the proper sales force can sell this product by making sufficient calls. He trains good salesmen but does not expect wizards.

In textiles today, he says, the selling job must be done by hard work in styling and making the product before it is put in the hands of the salesman. The totality of all that must be done in this broad effort is marketing as he, a veteran and uniquely successful marketer, understands the word. His definition is worthy of respectful note for it has been written not in words but in successful experience.

Orlon Blankets

(Continued from Page 51)

on one double action machine, it is usually more feasible to have several machines, with each doing a specific job, such as breaking, finishing and tucking, or felting.

The following table summarizes a napping procedure that will produce an excellent blanket of Orlon acrylic fiber with good bottom cover and a minimum of long fibers that are difficult to tuck or felt.

1. Breaking is done in about two runs using balanced moderate energy on the pile and counter pile rolls.
2. Make one or two passes using unbalanced energy, with greater positive energy on the counterpile than the pile rolls.
3. Make one or two runs using low positive energy on the counterpile rolls with slight negative energy on the pile rolls.
4. The final one or two passes are made with negative energy settings on both the pile and the counterpile rolls. ■

Wullschleger Anniversary

Wullschleger & Co., Inc., textile distributors, recently marked its 50th anniversary in the textile industry. Arthur E. Wullschleger, who established the firm in 1908, is still active as board chairman and design consultant. The firm is a printer of synthetic jersey fabrics employed primarily in the dress industry. Arthur J. Wullschleger, son of the founder's son, is now head of the company.

Cotton Consumption Analyzed

An increase in use in apparel led the way toward a general rise in cotton consumption during the 10 years ending 1956, according to the National Cotton Council's "Cotton Counts Its Customers—Special Edition." Cotton consumption in apparel during the decade noted rose by more than 1¼ million bales. The NCC publication reported that cotton use in the almost 400 separate end-applications surveyed, increased from almost 7½ million bales in 1947 to more than 8.1 million bales in 1956. In 1939, cotton use was only 6.6 million bales. *For free copies write the editors.*

Textured Nylon Carpets

A whole new era in styling, design and serviceability of carpets and other home furnishings fabrics was predicted by representatives of Allied Chemical Corp. The occasion was the first public showing of commercial carpeting of textured Caprolan, filament nylon. Croft Carpet Mills, Inc., created the new carpet, which comes in 11 pastel shades. Textured caprolan yarns, it was said, will contribute substantially to the serviceability of the carpets; the yarns have good abrasion resistance and like other nylon yarns, are expected to outwear any other type of textile fiber now generally used in carpeting. Textured caprolan, it was pointed out, is not subject to damage by moths, carpet beetles, mildew or rot.

(For further details about this new carpet see MTM Sept. '58 p. 63 ff.) *Additional information about Caprolan yarns in carpets and other uses may be obtained by writing the editors.*

YARNING TOGETHER—Fred Noechel (right) Allied Chemical Corp., Eston Croft (left) of Croft Rug Mills and Leon Ferenbach (center) of Leon-Ferenbach, Inc., discuss the development of textured Caprolan nylon yarns for carpet use.

REPORT FROM JAPAN

By B. Mori

Rayon staple cutback eased slightly; raw silk controls work poorly; wool cloth export quotas for U. S. fixed

OSAKA.—First sign of a break in the textile production curtailment program, in effect for more than a year, has been a minor easing of cutback in rayon staple. Up to end of September, mills had been operating at 60% of their production level prior to curtailment. Now they are operating at about 65% of that level, with permission of Ministry of International Trade and Industry.

Cotton, worsted, filament rayon and spun rayon yarns will continue at same reduced level of operations as in July-September quarter, meaning a 40% cutback for cotton and spun rayon yarns, 30% for worsted yarns and 50% for filament rayon.

Better Rayon Demand Felt

Improved export and domestic demand for rayon staple and spun rayon products is principal reason for slight easing of cutback. There is yet no real indication however, that two-year textile slump in the domestic market has broken to a point where major relaxation of the cutback may be expected, or that textile mills other than those running rayon staple can expect to pick up before end of 1958. With a bumper rice crop assured for third year in a row, farmers hold the key to textile prosperity. Big question is whether they will follow tradition and spend heavily on clothes for the New Year, or whether they will be attracted more to the growing variety of dazzling new electric appliances and other durable goods.

Prices Follow Demand Despite Controls

There is reason to doubt effectiveness of the check price system as a whole, on the basis of recent developments in the textile export field. It is clearly demonstrated that check prices have only a temporary restraining influence when export prices are moving downward through natural causes, such as lower raw material costs. Rigid floor prices set for a whole year become obsolete, unrealistic and oppressive to the trade under such circumstances.

Many silk fabrics which comprise an important fraction of exports to the U. S. have been selling below check prices for many months. So have sweaters and gloves, floor coverings, certain types of cotton apparel and cotton fabrics.

The Government has permitted exporters to lower the floors on silk fabrics and floor coverings, and some cotton goods. Wool goods check prices will be reduced eventually, also.

Raw Silk Price Controls Work Badly

The Government's price support program for raw silk has been practically nullified. When the Government "guaranteed" the minimum price of 190,000 yen a bale (about $4.05 f.o.b.) last March for the entire season, it did not realize the quantity of silk which would have to be bought. The guarantee seemed safe at that time; but now the Government simply cannot afford to appropriate the huge sums necessary to purchase and store an inventory of raw silk for an indefinite period.

The Government has tried to "save face" by merely modifying the purchase program's regulations and still maintain outward appearance of continuing support program. But in effect, it is no longer of any importance to the market.

As this is being written, the Government is debating some form of additional support for cocoons or silk, at a lower level. This will not be comparable to the former unlimited support plan at 190,000 yen. The market has already anticipated these moves, and has stabilized recently at around 150,000 to 160,000 yen.

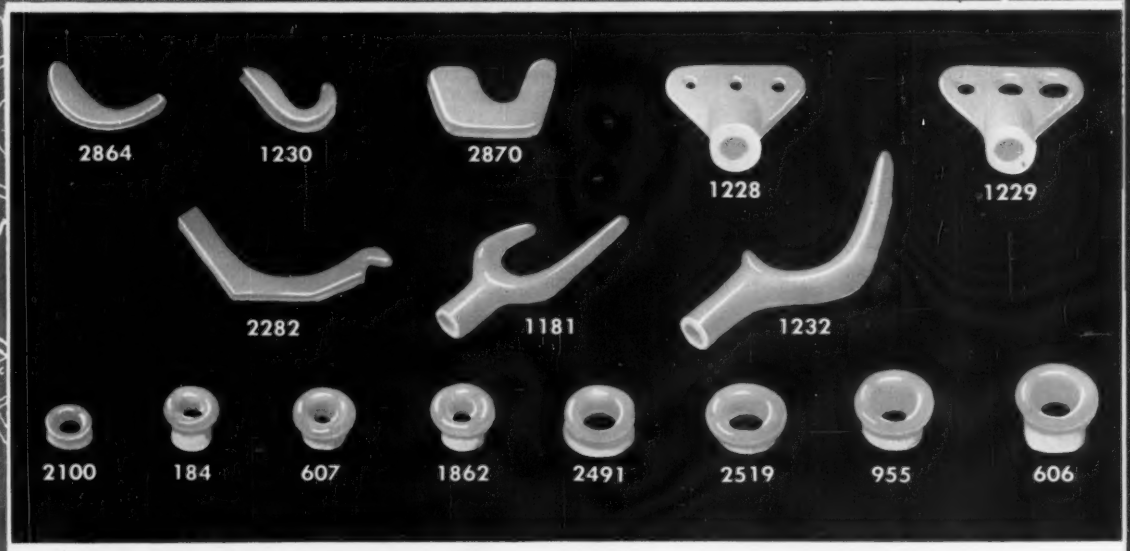
Silk Fabric Exports Curtailment Debated

The issue of Japan's growing exports of silk fabrics to U. S. is still under debate. As a result of protests from American weavers, Japanese side has offered to place three fabrics under export quota, in addition to the habutae now controlled by quota. The American side has rejected this proposal, and so the subject is being studied anew here.

Export Quotas Set For Wool Cloth

Wool fabrics are now under export quota control to U. S. Based on exports of past three years, the quantity for current twelve-month period will be about 8,000,000 square yards. Exact quantity is uncertain because certain types of high-quality goods will be exempt from quota. In all, the system will result in a decrease of about 20% in yardage exported to U. S., but a smaller decrease in the value of such exports.

MACHINERY and EQUIPMENT SECTION



Mitchell-Bissell "BLUE SATIN FINISH" Porcelain Guides

For Circular Knitting Machines and Stop Motions

"BLUE SATIN FINISH"*, the original satin finish for Porcelain Guides, was perfected and introduced by us to the Textile Industry in 1936, with the blue color adopted only as a means of product identification. This finish provided . . . and still provides . . . a surface having *far greater resistance to thread wear* than available in any other porcelain guide.

"BLUE SATIN FINISH"* Porcelain Guides were used on the *first run* of Nylon Yarn, and have since been considered standard equipment by leading processors of Nylon, Dacron, Orlon, Rayon and all the other synthetic fibres.

Because there are other "blue" guides on the market, it is only by specifying the complete name . . . MITCHELL-BISSELL "BLUE SATIN FINISH"* PORCELAIN GUIDES . . . that you can be sure of getting the *genuine, wear resistant finish* that makes these guides so far superior in service and economy.

MITCHELL-BISSELL "BLUE SATIN FINISH"* PORCELAIN GUIDES are available in thousands of standard shapes, or made to your specifications. Guides illustrated above are shown in approximately actual size.

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MAIN OFFICE AND FACTORY:
TRENTON, N. J.

New MACHINERY
New EQUIPMENT

Paper Thermometers

Paper Thermometer Co. is now marketing Thermopaper and Thermotube disposable paper temperature indicators available for 100, 105 and 110° F to supplement the previously offered range of 115 through 490°F. The indicators measure temperature by an irreversible color change when subjected to predetermined temperatures. They are being widely used during curing of resins in fabric finishing, curing of screen-printed textiles, drying and heat-setting of fabrics, and in other textile processing operations. *For further information write the editors.*

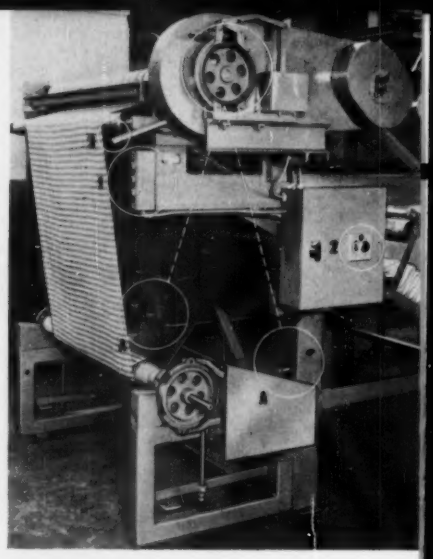
Yarn Tension Meter

Fidelity Machine Co. has introduced for use by the hosiery industry a yarn tension meter reading from 0.5 to 3 grams. The meter is designed for single hand use in checking and controlling yarn tension under load during knitting, spinning and winding operations. Precision sensitivity is said to permit its use with the finest yarns. *For further information write the editors.*

Improved Filling Spindle

Hartford Machine Screw Co. has introduced what it describes as an improved, high-production filling spindle. This top-drive

spindle, with a smaller whorl of 25/32-inch diameter, is said to have a better drive ratio which increases spindle speed. The acorn has been eliminated on the Hartford spindle, resulting in a lengthened cleaning cycle which lowers production costs. *For further information write the editors.*



Roll Feed Stop

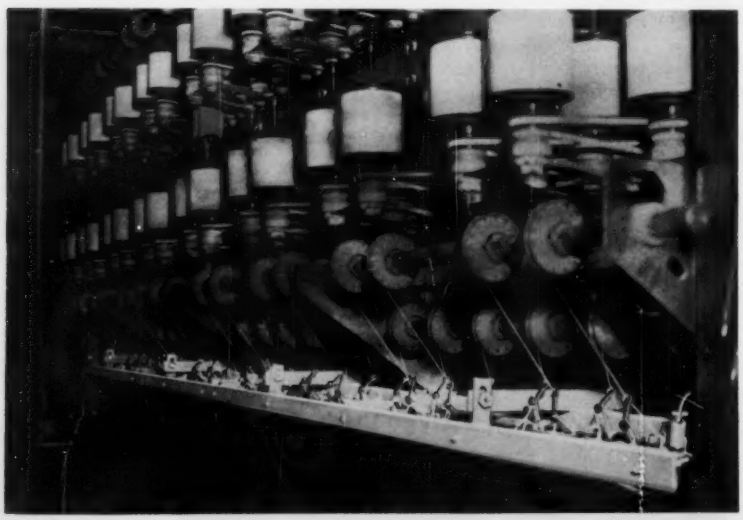
A safe and convenient stopping feature is now available with new continuous roll feed units manufactured by the Mount Hope Machinery Co. As the let-off roll runs out, a photoelectric mechanism triggers braking action which prevents coasting of the nip rolls and motor, thus stopping the end of cloth from running through. The new device is said to eliminate the dangerous practice of trying to stop cloth manually. *For further information write the editors.*

Infra-Red Burner

Process Heating has announced its infra-red burner, especially designed to permit efficient heat transfer of "infra-red" or radiant heat. The burners are reported not affected by high velocity air and can be installed in ovens or ducts where there is a rapid movement of air. The manufacturer reports their use speeds up drying and processing. Rate burner capacity is 80,000 BTU per hour per foot of burner length. The burners can be throttled to 30% of rate capacity, if desired. *For further information write the editors.*

New Stop Motion

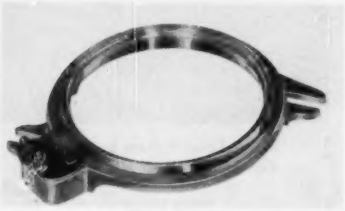
Edward J. McBride Co., Inc., is employing its mercury switch stop motion on rubber thread covering machines to detect broken strands, knots and tangles. The conventional open contact type has not always been successful because talc and soapstone with which the rubber strand is coated flakes off and deposits on the contacts, making them inoperable. In the McBride mercury switch stop motion, all contacts are sealed to keep out contaminants. Each unit is preassembled at the factory and can be attached to the conventional machine in minutes, since it is clamped rather than bolted to existing frame members. *For further information write the editors.*



New McBride mercury switch stop motion

New Conical Ring

A new construction in a conical ring has been announced by Herr Manufacturing Co. The new "M" type provides seam lubrication to the top surface and inside conical surface where the traveler contacts, giving improved uniformity of oil flow. Cleaner yarn results are reported since there is no chance for oil leakage.



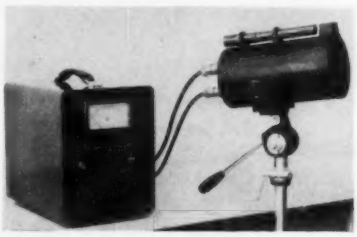
After three years of experimental use of the "M" type conical rings, Herr is offering them with the statement that travelers are longer lasting and rings will give years longer service. Faster operation will be possible with less yarn breakage. Either hand oiling or a pressure oil system can be used. New literature has been issued by the company covering the construction and operation of the "M" type Herr conical rings. *For further information write the editors.*

Comber Improvements Available

Saco-Lowell announces that the advantages incorporated in its Model 56 and Model 57 combers may now be obtained with its earlier Model 50, 52, and 54 combers by installing the company's new Comber Changeover. The new changeover includes a completely new epicyclic roller motion.

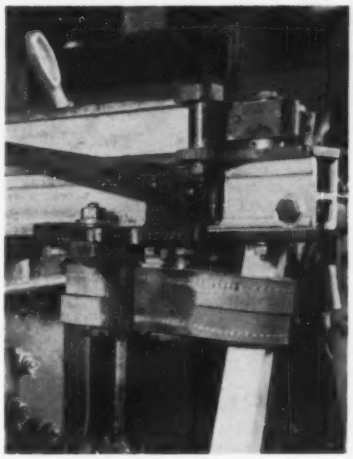
Saco-Lowell points out that the Model 56 Comber was a major advance in comber design in that it permitted an increase in speed from 106 to 126 nips per minute while attaining the same high sliver quality. The machine also offered an improved drafting system which definitely aided in reducing sliver variation. Also, the application of automatic self-cleaning clearers to the draw box contributed substantially to the overall operating efficiency of the Model 56 Comber.

The Model 57 Comber gives the improved performance of the Model 56 but offers, in addition, structural changes that increase the life of many of the comber parts. One of these improvements is the fully automatic lubrication system. Previously models were lubricated every eight hours through a hand-operated pressure system. The new comber has a motor driven lubricator which automatically lubricates all essential bearings every 72 minutes. Mill production executives who wish further information on how the new comber changeovers can be installed on their present Saco-Lowell combers are invited to get in touch with the company's representatives. *For the name and address of such representative nearest your mill, write the editors.*



High Speed Radiometer

Radiation Electronics Corp. reports it has developed a high speed radiometer for remotely measuring the temperature distribution along organic and inorganic fibers during high speed drawing processes. The fiber is not disturbed or affected by the measurements since the instrument operation is passive and remote. The manufacturer states a complete temperature "profile", from the melt or orifice to a point on the fiber near room temperature, can be obtained in a few seconds. *For further information write the editors.*



Twin-Check Strap

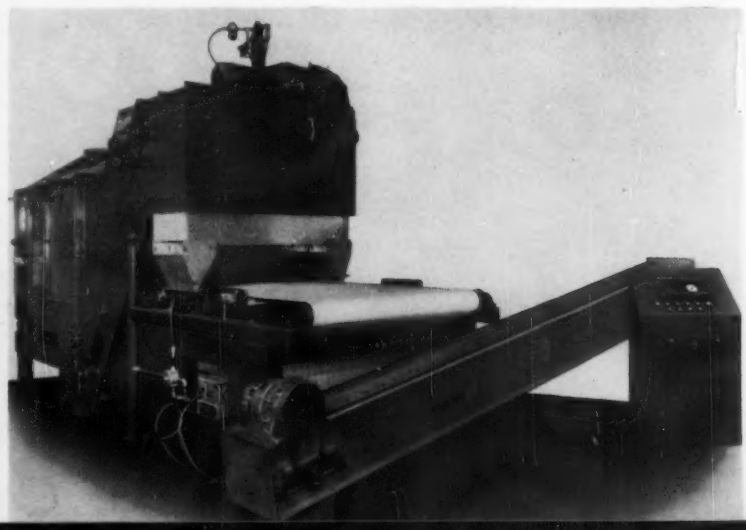
J. E. Rhoads & Sons has announced the development of a new Twin-Check Strap designed to replace conventional endless check straps. Wear is said to be distributed evenly over both straps as they follow through the arc of the picker stick, and require little or no adjustment because they are pre-stretched. *For further information write the editors.*

Drop Box Picker

A new synthetic drop box picker, the "Golden Thorobred", has been developed by the Textile Division of The Dayton Rubber Co. The new picker requires no oils or dressings and is said to give up to 10 times the wear of conventional pickers. Made from a newly developed synthetic elastomer, the picker helps diminish noise level on looms because of the shock absorbing qualities of the material. *For further information write the editors.*

Proctor Weigh Belt

For improving accuracy of feed rate for light weight materials, Proctor & Schwartz, Inc., has announced the availability of a new standard controlling weigh belt. The belt is for use in conjunction with a Proctor feeder for feeding leafy, fibrous, shredded, flaked, chipped, extruded, pelletized, or any lower density, relatively light weight product, such as textile fibers, fiber glass, rock wool, etc. The unit is said to control the rate of feed with a guaranteed accuracy of plus or minus one per cent of maximum scale reading. *For further information write the editors.*



New Floor Seal

A highly abrasion-resistant floor seal, Tennant No. 15 Heavy-Duty Floor Seal, has been developed by G. H. Tennant Co. It is said to last twice as long under heavy traffic as most heavy-duty finishes now available. Developed and tested over the past five years, the new product provides a light, semi-lustrous film that does not darken with age. Its main characteristics include high resistance to rubber and friction burns, abrasion, moisture and dirt penetration, according to Tennant. *For further information write the editors.*

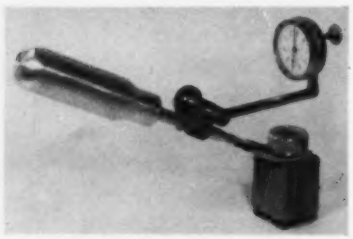
New Trumeter Devices

Two new devices are being offered by Trumeter Company. The first, the SR-8, consists of a quick reset counter with an inclined front and equipped with a long rod, running in ball bearings, at the end of which is attached a measuring wheel. The other is the "Trumeter," but with a built-in totalisor and a new type of ticket printer registering the individual pieces of material. The tickets are automatically ejected. *For further information write the editors.*

New Adhesive Material

Loctite, a special adhesive material for locking threaded fasteners, has been added by Steel Heddle Manufacturing Co. to its line of textile supply products. A drop of the new product, applied to metal nuts, bolts and screws, is said to harden into a plastic seal providing a locking action extending over the entire surface of the engaging threads. Threaded fasteners so treated can be easily removed with ordinary tools but will not loosen from vibration, the manufacturer claims.

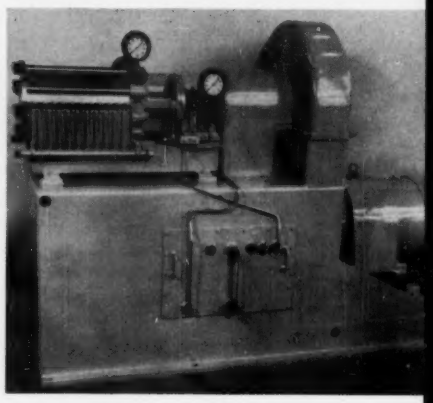
Loctite may be used on all metals except zinc or cadmium; a special activator is available for these surfaces. Intended for use in shuttle bolt applications, the product is offered in lots of six 10 cc. bottles. *For further information write the editors.*



Roll Run-Out Indicator

Runout Checking Device

Custom Scientific Instruments, Inc., has added to its line a device for checking the runout or eccentricity of both top and bottom spinning rolls and roving rolls in textile mills. The roll runout indicator was developed by West Point Mfg. Co. A magnetic base holds the unit in position so that the dial indicator button rests at about the center of the roll and normal to the surface of the roll. As the frame is running the fluctuations of the dial indicator read the runout which is twice the eccentricity. *For further information write the editors.*



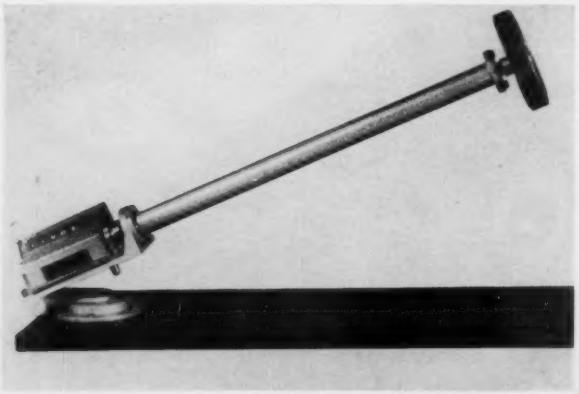
Baker-Perkins new
Continuous Processing Machine

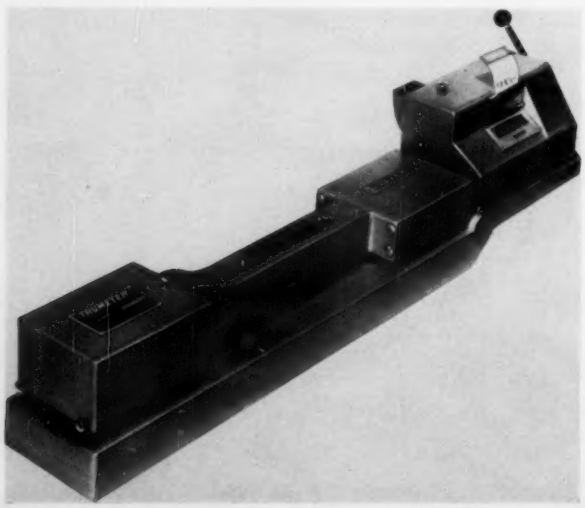
Processing Machine

Chemical Machinery Division of Baker Perkins Inc. has announced a continuous processing machine capable of transferring heat to or away from materials as it mixes. The unit is essentially a continuous reactor combining continuous mixing with accurate process temperature control. The multiple action of the unit permits its use for emulsifying, cooling and heating in the manufacture of synthetic fiber, specifically in dope heating and cooling, gel removal and viscose heating and cooling. It also has wide applications in other industries. *For further information write the editors.*

Lubriplate Lubricants

Lubriplate Division of Fiske Brothers Refining Co. is offering a full line of lubricants for trucks, tractors, buses, and construction and farm machinery. Use of the lubricants is said to not only last longer but also do a better job of protecting machinery and equipment and, consequently, cut operation costs. The company suggests lubricants should be selected also as a protection against dirt and corrosion as well as providing proper lubrication. *For further information write the editors.*





(Above) Trumeter's new SR-8 Counter

(Right) Improved Model "Trumeter"

PAPERS OF THE
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Polyolefin fibers in textiles

Hearing a lot about polyolefins these days? Here a leading authority tells you the facts about the textile possibilities of these low cost fiber-forming materials

By Victor L. Erlich
REEVES BROTHERS, INC.

MUCH has been heard in recent years about the spectacular growth in importance of polyethylene in the plastics field and of polypropylene which is now emerging into commercial production. These are the polyolefins which are discussed in the following report.

What are polyolefins? If the reader opens his old textbook of organic chemistry under carbohydrates, he will find on the first pages the *Paraffins* and on top of the list the simplest units to be methane, ethane, propane, butane a.s.o. These are gases under atmospheric pressure composed of carbon and hydrogen only, each molecule having one, two, three, four carbon atoms respectively. In the conventional chemical language they were called "saturated" because each of the four valences of the carbon atom holds either one hydrogen or one other carbon atom. With increasing numbers of atoms, in other words increasing molecular weights, the compounds go through liquids at room temperature—to oily and, at about 16 atoms in the chain, to solid materials. These solids are the paraffin waxes which gave the name to the entire group.

Turning the pages of the textbook, the reader will next see the *Olefins*. These also are formed exclusively of carbon and hydrogen, but they are "unsaturated". This means all or some of the carbon atoms have only three attachments; the open valence is designated conventionally as a double bond. This location of unsaturation can be opened or activated to connect one carbon atom of one molecule to an unsaturated carbon of a second molecule and then to a third one and so on. This is the process of polymerization of the individual molecule, called monomer, to a chain of monomers, called polymers, or more commonly described as resins.

Figure I shows a list of olefins and their polymers which are such polyolefins as we are interested in for fibers, at present and potentially. These monomers are designated alpha-olefins because the double bond is located always at the first C-atom. The polyolefins, more correctly poly-alpha-olefins, are actually paraffins, because the polymerization process eliminated the double bonds.

Depending on the conditions of the polymerization, the carbon chains can be lengthened theoretically without limit, polyolefins suitable for practical fiber production have between one thousand and four to five thousand carbon atoms in the paraffinic chain.

Victor L. Erlich

Dr. Erlich is a vice president and also director of basic research and development at Reeves Brothers, Inc. He received his doctorate degree at the Institute of Technology in Vienna. For many years in Europe he was engaged in research and production in the field of natural and synthetic polymers largely in connection with paints and yeasts. Dr. Erlich joined Reeves Brothers in 1950.

Paper presented at the September 10th, 1958 meeting of the American Association for Textile Technology, Inc. at New York, N. Y.

However, the positions are by far not as streamlined as could be concluded from this table. Let us have a look at polyethylene. When ethylene was first polymerized in England some 20 years ago under high pressure and at high temperature, and the activation of the double bonds was done by peroxides, not all the C-atoms were aligned in a straight chain; a substantial portion of them formed side chains, short ones and long ones, and this was the polymer we used to call polyethylene, or polythene in England, until about three years ago.

ity, melting point, and mechanical behavior. For instance the atactic polymers are lower in density and have an entirely different, much lower melting point. From the fiber standpoint the isotactic polymers are the import ones; and it is Natta's revolutionary achievement to have opened these views and the field of what he calls "stereospecific" construction of polymers.

Figure II gives the densities and melting points of some polyolefins as a matter of illustration.

At present only the polyethylenes and isotactic

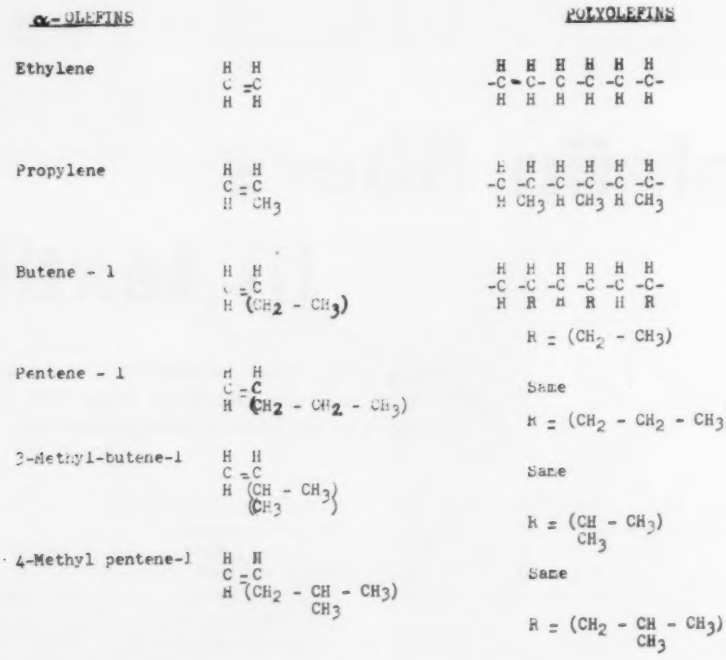

Fig. I

The building of the C-groups mainly into a straight or linear chain came about as a by-product in the research on polymerization with organic metal catalysts. Professor Ziegler in Germany and Phillips Petroleum in this country, independently were the first to establish the basis for commercial production. In their early research work, it had perhaps not been quite anticipated that polyethylene would be the important practical result. But what came as an additional surprise was that this new "linear" polyethylene was quite different from the old "branched" type in its physical characteristics.

The alpha-olefins other than ethylene have methyl and higher atom groups attached to the double bonds; upon polymerization these groups can be located on one side of the chain, as in Figure I for polypropylene for instance; or on both sides, this either at random or in regular alternation. How to control these respective molecular arrangements in the molecular space was shown dramatically by Professor Natta in Italy. He coined the words "isotactic" for the arrangement shown in Figure I; and "syndiotactic" when the methyl or "R"-groups alternate regularly on both sides of the C-chain; finally "atactic" for random distribution on both sides.

Here again, the physical characteristics of the resulting polymers differ considerably, in specific gravpolypropylene are of practical value, but additional polymers are listed to show in which direction future developments could or could not be of importance, as far as the melting points are a determining factor; they are compared with nylon as reference.

Fiber Production

We have now to see why and how these polymers can be used for the production of fibers. Because of the chemical inertness of these polyolefins and the difficulty to bring them into solution, the fibers are produced by melt-extrusion. In the molten resin the long chains are present, but distributed at random; they are coiled, bent, entangled much like the loose agglomeration of cotton staple in the cotton lint. These agglomerations have no strength as long as the individual fibers are not aligned or oriented parallel to the yarn axis; this is done by carding and drawing the cotton.

Likewise the filaments extruded from the melted polymer have no strength. They have to be cooled below the melting point and are then subjected to the drawing operation under conditions which produce frictional forces and orient the molecular chains parallel to the filament axis.

Strong filaments are formed when attractive forces between the molecular chains are effective. To con-

tinue a familiar comparison these forces act like the twist in the cotton yarn to hold the individual staple so closely together that surface friction prevents them from slipping.

But the molecular chains have to remain in this aligned position and not coil back to the initial status after release of the stretch, as is the case with rubbery materials. In strong fibers crystalline regions are embedded along the molecular chains, and between them amorph regions are located. The greater the degree of such crystallinity the stronger is the fiber and the lower the residual elongation to break. In turn the crystallinity increases the rigidity.

Figure III is an illustration taken from one of Prof. Natta's papers which visualizes under A and B the stretching of rubbery molecules, which remain oriented only as long as they are stretched. C and D show the unoriented and the oriented polyolefin fibers, wherein the dark spots are the crystalline regions which hold the oriented molecular chains in their position. If the fibers are heated close to the melting point, the crystals disappear and the strength is lost.

From all this it is evident that the length of the molecular chain, in other words the molecular weight, and the degree of crystallinity are determining factors for the fiber properties such as tensile strength, elongation, flexibility.

The *Technique of Extrusion* of these fibers was guided by the fact that the polyethylene initially available, ten years ago, did not lend itself to the production of low denier fibers and yarns. Strength and melting point were low, and there was no place for such yarns in the broad textile field because of

Polymer	Specific Gravity	Melting Range °C	Melting Range °F
POLYETHYLENE BRANCHED TYPES	0.92	107-210	225-250
POLYETHYLENE LINEAR TYPES	0.95 - 0.96	130-138	265-280
POLYPROPYLENE ISOTACTIC	0.90 - 0.92	165-175 [1,2)]	325-335
POLYBUTENE-1	0.91 - 0.92	126-128 [2,3)]	225-265
POLYPENTENE-1	0.87	75-80 [3)]	165-175
POLY-3-METHYL BUTENE-1	0.90	245-300 [3) 4)]	470-570
POLY-4-METHYL PENTENE-1	0.83	235-241 [4) 5)]	455-466
NYLON 6/6	1.14	252	485
NYLON 6	1.14	212	414

1.) G. Natta, G. Mazzanti, G. Grespi, G. Moraglio; Chim. e Ind. 39,275 (1957)
2.) F. Danusso, G. Moraglio, G. Natta; Ind. Plast. Mod. 10, 40 (1958)
see also J. Polymer Sci. 25, 119 (1957)
3.) G. Natta; Angew. Chemie, 68, 393 (1956)
4.) G. Waller, Celanese Corp. of America; Oct. 1957
5.) G. Natta; Unpublished data.

Fig. II—Comparison of Densities and Melting Ranges

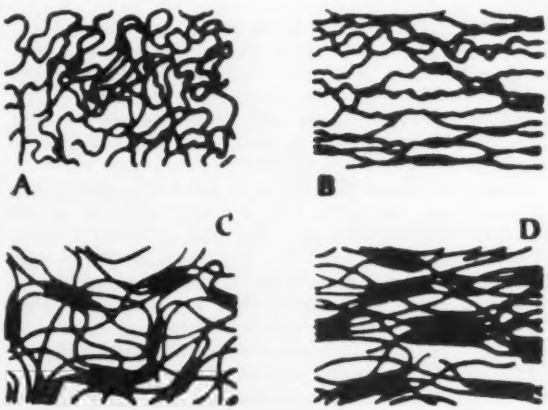

Fig.—III Schematic representation of various Polymer Structures. A—Unstretched Rubber; B—Stretched Rubber; C—Unoriented crystalline polymer; D—Oriented crystalline polymer.

their hydrophobic properties and the impossibility of applying regular dyeing methods.

Therefore the first commercial attempts were in the direction of industrial fabrics and other applications where monofilaments of comparatively heavy gauge could be used. Their diameter was not lower than say .012" in diameter or approximately 650 denier.

A typical extrusion assemblage, similar to that used for all heavy monofilaments such as saran, polystyrene, nylon, consists of a screw-extruder where the resin or the resin compound is melted and then metered to the extrusion die. The extruded rods are quenched and subsequently drawn between pressure or godet rolls, and the oriented filaments wound on spools or tubes.

Basically, the same system is in operation up to now, because most of the present production of polyolefin fibers is still in form of monofilaments though down to .005", even .004" and .003" diameters or to approx. 100 to 40 deniers. Of course considerable changes have been made, particularly to adapt the system for the drawing of high tenacity linear polyethylene. The branched type could be or had to be drawn cold, this means without supply of external heat. (Internal friction generates heat within the filament).

The much more rigid linear material requires a hot-draw to operate at commercial speed and for the draw ratio of around 1 to 10 as against between 1 to 4 and 1 to 7 practiced for the branched polyethylene. Heat can be supplied by various means, such as hot water or other liquids, steam, hot air. The drawing equipment has to be adjusted accordingly. Extruder-construction also became better understood and better adapted to quality and economy of production.

Considerable and basic changes however will be necessary when and if much thinner filaments, multifilaments and perhaps staple yarns will be produced industrially. It will be useful to draw from the available experience in the established practice of spinning and processing other synthetic fibers. But this further development is still in the state of study and development, here and abroad.

Textile Uses

We have seen what polyolefin fibers are and how they are made, now we have to know what they are good for in textiles. At this date we have the two types of polyethylene on one hand, polypropylene on the other. Regarding polyethylene, we have already seen the sharp differences between the old and the new type in their physical properties and this difference becomes even more dramatic when we compare the properties of the respective fibers. The tenacities of the new linear type filaments are three to four times that of the old ones. The old fibers were much softer and more flexible than the new ones.

When the linear polyethylene made its appearance in 1956 there was quite a controversy whether or not the two polymers should be given different names; it could have been called polymethylene, but it was an established practice to designate the polymers by the monomer it is produced from and this is ethylene in both cases. Early distinctions of high pressure for the old type and low pressure for the new one were based on the respective polymerization processes. But the designation is misleading because linear polyethylene can also be produced under high pressure as was shown in Du Pont's research; and today it is possible to produce tailor-made branched type under low pressure. For the time being we distinguish them best as branched and linear, or low density for the branched type and high density for the other one.

As a matter of fact, the branched type polyethylene is in some respects closer to polypropylene, than to linear polyethylene. I hope, Professor Natta will not sever his friendly relations with me, if I venture to say that it is an unspecific atactic polyolefin in the broadest sense of Natta's designation. Its chain lengths are comparatively short as indicated by its average molecular weight, which ranges between 20,000 to 30,000, whereas 100,000 is the order of magnitude for the isotactic polypropylene and for the linear polyethylenes.

Long-Chained Paraffins

Whatever the designations, there is one common denominator for the polyethylenes and polypropylene: they are long chained paraffins. This determines their chemical characteristics and in turn their fields and methods of application with their advantages and limitations.

In view of this interrelation it will be best to discuss them all together. These *polyolefins have in common* the following properties: *Water-absorbency is practically nil;* this means dry and wet strengths are the same.

They are *chemically inert* particularly to alkalis and acids in all concentrations. Exceptions are concentrated nitric acid and oxidizing agents in general, more pronouncedly at elevated temperatures. Aromatic solvents, such as benzene, toluene, xylene, and chlorinated hydrocarbons cause swelling at room temperatures and reduce the strength of the fibers. (Solutions of the polyolefins can be obtained at temperatures of 160 to 180°F.) Mineral and vegetable oils also are slightly absorbed and cause swelling, the higher the temperature the greater the swelling. However, it should be noted that linear polyethylene and isotactic polypropylene are in most instances pronouncedly more resistant than the branch-type polyethylene of low molecular weight.

Quite important from the textile viewpoint is their *mildew resistance*. They have *no odor;* they need *no plasticizer,* therefore their inherent flexibility remains permanently unchanged, provided the polymer itself is not deteriorated due to other causes.

They are perfectly *stable* when stored at room temperature. They are heat stable or can be stabilized to permit their being heated for short periods to temperatures up to 600°F, without degradation or yellowing; this gives an interval of temperatures above the melting points, broad enough to permit their extrusion without too critical limitations.

They *burn slowly,* but fine filaments usually melt before propagating the flame, but the flame resistance can be improved by incorporation of retarding agents such as mineral compounds or certain pigments or chlorinated waxes.

Outstanding are the *electric properties* which make them so useful as insulating materials even at high frequencies. In this connection their electro-static properties have to be mentioned; they have to be taken into account, depending on the end use.

Dyeing is a problem, because coloration has to be done by incorporating selected light and heat stable pigments. This is accomplished by dispersing them into the resin compounds prior to extrusion. There is good hope that further research work will be successful to permit dyeing of the fibers or fabrics. This would be an important step forward for the requirements of the textile trade. Printing can be done today

POLYMER		Spec. Gravity	Tenacity gr./den.	Breaking Strength lbs./sq.in.	Elongation to Rupture %	Stiffness Modulus lbs./sq.inch	Shrinkage 212°F, 20 Min. % of orig. length	Softening Range (without load) °F
POLYETHYLENES	REEVON							
Branched low mol. weight (19,000 to 20,000)	400	0.92	1.0/1.5	15,000	45/50	20/25,000	50/60	185/205
Branched, med. mol. weight (23,000 to 25,000)	600	0.92	2.0/2.3	23,000	25/30	25/30,000	40/50	220/230
Modif. Branched	670	0.93	3.0/3.3	37,000	17/25	40/50,000	25/35	245/250
Modif. Linear	760	0.945	5.0/5.5	65,000	14/20	75/85,000	10/15	250/255
Straight Linear	700	0.95 0.96	5.5/7.0 6.5/8.0	80,000 90,000	10/20 10/20	80/110,000 130/150,000	5/10 5/10	255/265 260/270
POLYPROPYLENE Isotactic	800	0.90	5.5/7	80,000	15/25	150/180,000	10/15	300/310
NYLON 6/6 Regular dry		1.14	4.5/6.0	80,000	25/30	400/600,000	5/10	(470/480)
" wet			4.0/5.2	70,000				
High tenacity dry		1.14	6/9	120,000	15/28	550/650,000	5/10	(470/480)
" wet			5.5/7.5	105,000				
POLYVINYLIDENE CHLORIDE		1.65	1.8/2.2	40,000	20/30	55/95,000	10/15	240/280

Fig. IV—Comparison of Physical Properties of Oriented Filaments.

after pre-treating the surface of filaments on fabric, but this obviously is only a superficial coating.

All these polyolefins have a *density below that of water*. Their specific gravity of 0.96 for high-density polyethylene, down to 0.90 for isotactic polypropylene, is lower than that of any of the other known fiber forming resins. They float on water permanently and the products, be it ropes or fabrics, are comparatively light in weight.

Cost Is Low

This property of light weight has particular bearing on the *economics* of these fibers in the textile field. The basic raw materials, ethylene and propylene, are the simplest and cheapest monomers with only a fraction of the price of adipic acid, terephthalic acid and acrylonitrile, the monomers for nylons, polyesters and acrylics. The polymers also range among the lowest priced resins with the exception—for the time being—of saran and polystyrene. In form of fibers the differences narrow down because of the cost of processing, but still the polyolefins remain on the low side . . . per pound. But the yield in yards per pound is the highest, 20% to 25% better than for the nylons 6/6 and 6, and 70 to 80% better than for saran. Therefore, they are or could be the lowest priced among the synthetic fibers and fabrics.

Now let us discuss how the polyethylenes and polypropylene *differ*. Before doing so, we have to point out that it would be an oversimplification to think that we have today only three polyolefins, two polyethylenes and one polypropylene. First, we have two linear polyethylenes, the Ziegler type and the Phillips type which differ somewhat, and both are used for filament production; then each resin manufacturer offers several and an increasing number of modifications to meet different requirements. This is a very confusing situation because careful selection has to be made depending on the intended fiber end use. In spite of or in addition to these varieties, the filament producers themselves had to develop their own compounds for various end uses.

Figure IV gives an illustration of the different polyolefin-filaments produced or offered today. I have taken the liberty of mentioning the designations of my company's Reevon compounds and will use these for the discussion. Of course, other manufacturers of polyolefin filaments have their own designations; they are apparently concentrating their efforts on the high tenacity fibers, for instance in this country Dawbarn Brothers, Inc., under the trade name DLP-3; Firestone Plastics Co.'s Velon LP; General Tire & Rubber Co.'s Bolta Products Division's Boltathene; National Plastics Products Co.'s Linear Polyethylene; U. S. Rubber Co.'s US Royalene; in England, Courlene X-3 is the name of Courtauld's high tenacity fiber; in Germany, Farbwerke Hoechst have their Hostelen.

Where Polyethylenes Started

The low molecular weight *branched type*, Reeves 400 series and the old Courlene of Courtaulds Ltd. in England, was the starting point of the polyethylene fiber and therefore of the polyolefin story, ten years ago. We had to learn our lesson through the failure of this type of polyethylene and this casts even today some doubt in many minds as to whether or not these fibers can or will have a place as textile material. Strength and abrasion resistance were low, and this was aggravated considerably by poor resistance to sunlight and by a tendency of cracking under certain stress conditions. However, this old type still has some use where high flexibility at low temperature is primarily desirable, as in aerial tow targets, and where the low melting point is of no importance or advantage, such as for interlinings which still are popular in England for shirt collars.

The branched type 600 series were the first fruits of Reeves' research and were introduced by the end of 1953. These filaments had greater strength and had better resistance to surface cracking, and improved ultra-violet stability when pigmented by special processing. This actually opened the field in some industrial applications, for instance for ropes where we cooperated closely with big rope manufacturers.

The first fabrics for wet-filtration came into operation on rotary filters in one phosphate plant of International Mineral Corp. in Florida; they found slow but satisfactory introduction for many chemical filtra-

POLYMER	Yarns Elongated to Fraction of Original Length, then Relaxed		
	1.05	1.10	1.15
POLYETHYLENE BRANCHED, Dens. 0.92	92-95	88	82
POLYETHYLENE LINEAR, Dens. 0.96	92-95	80-85	70
POLYPROPYLENE ISOTACTIC (PROFAX)	98	95	95
POLYAMID (6/6)	90	85	75

Fig. V—Comparative Recovery of Monofilaments from Elongation.

tion purposes. Resilience, controlled shrinkage and durability eliminated the cost differential against cotton filters. Similar fabrics were developed for anode bags in electroplating with the cooperation of Westinghouse Corp.

These 600 filaments as resilient shrinkable yarns became also a factor in the development of the three dimensional fabrics, particularly well known as "Trilok" of U. S. Rubber Co. for primary upholstery in automobiles and furniture.

But this is history now. The *linear or 700 types* made their appearance tentatively in 1956 and definitely during 1957. They substituted and developed the applications of the "conventional" branched type polyethylene filaments, wherever the considerably greater strength and resistance to surface abrasion and better dimensional stability were more important than flexibility and resilience. The new filaments took a firm foothold in the rope field and in woven fabrics for special end uses as well as in braided form.

I do not intend to enumerate here all the numerous possibilities of end uses suggested or already under evaluation. Plenty of this is continually being published in promotional literature. I wish to concentrate on those which are of salient importance for the understanding of what can be expected in the development of these fibers.

There is of course the stronghold of saran in the seat cover and outdoor furniture field, which comprises the so-called webbings for chairs. This is a prize of ten to twenty million yards or pounds. For linear polyethylene having strength and abrasion resistance and color fastness better than saran, this is an open field. There is quite a reluctance in the trade to change from a well established material to a new one, all the more as the bad taste of previous failures remains. But the new polyethylene should serve the purpose at lower cost, particularly since methods have been developed to provide for ultra-violet resistance, sufficient to compare with saran, and saran is practically a standard in this respect.

But all is not rosy with the linear polyethylene for the textile man. Its resilience is poor; and when filaments or fabrics are folded the creases remain permanent where this is not desired. This is clearly demonstrated by comparing fabrics of similar construction woven from branched and linear polyethylene monofilmants and polypropylene.

I am indebted to the Development Department of Hercules Powder for some of the data given for recovery upon elongation of filaments in Figure V. These figures have qualitative value only because the degree of orientation and the diameter of the filaments and particularly the speed of drawing have a pronounced bearing on the results. But they are an expression for the poor resilience of high density polyethylene and the excellent performance of *polypropylene*, Reeves' 800 series.

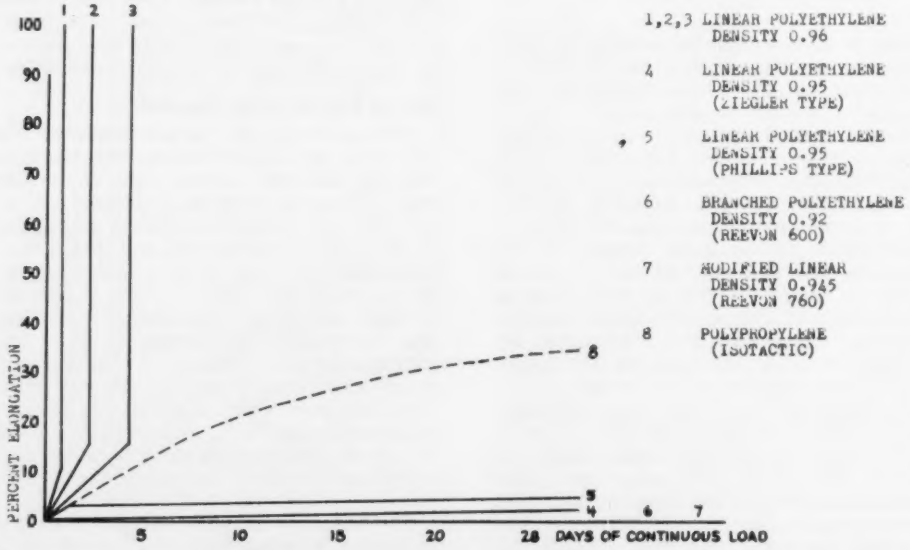
1,2,3 LINEAR POLYETHYLENE DENSITY 0.96
4 LINEAR POLYETHYLENE DENSITY 0.95 (ZIEGLER TYPE)
5 LINEAR POLYETHYLENE DENSITY 0.95 (PHILLIPS TYPE)
6 BRANCHED POLYETHYLENE DENSITY 0.92 (REEVON 600)
7 MODIFIED LINEAR DENSITY 0.945 (REEVON 760)
8 POLYPROPYLENE (ISOTACTIC)
PERCENT ELONGATION
DAYS OF CONTINUOUS LOAD

Fig. VI—Creep of Oriented Polyolefin Filaments (round, diameter .012") under dead load of 25% of respective breaking strength. Room temperature

This brings us to another important feature known as "cold flow" or "creep" of the fibers when they are subjected to a dead load over long periods of time. Under such conditions all the synthetic fibers elongate slowly in various degrees and do not recover their original length upon being relaxed.

All fibers have a so-called yield point at which they "give" permanently. These yield points are determined under normal test conditions by increasing the load at a comparatively high speed of usually 12 inches or 20 inches per minute. Depending on the respective polymer and its degree of crystallinity and the orientation of the fiber, the yield strengths vary usually between 70 and 95% of the breaking strength, at room temperature. Cold flow, which means elongation under long-time stress, occurs at loads which are much lower than the respective yield points. In this regard straight linear polyethylene of the highest densities of around 0.96 performs quite badly. This is probably due to the fact that this polymer comes closest to the "ideal" straight C-chain, shown in Figure I. By introducing a small number of side groups, methyl or others, the position changes dramatically as shown on the diagram of Figure VI.

These results were obtained in our laboratories with filaments oriented under our production conditions. The dead load was 25% of the respective breaking strengths and the exposure time 4 weeks. over a period during which even the best linear polyethylenes (4 and 5) had yielded completely. These performances are borne out in rope testing and explain the surprising result that polypropylene ropes have comparatively higher strength than polyethylene ropes made with filaments of apparently similar tenacity because some degree of after-orientation (or annealing) occurs during the process of rope laying.

Another advantage of polypropylene is the higher melting point. With the introduction of the higher density polyethylenes the "boiling water" barrier was crossed. Now we are approximately 60°F higher, but still not high enough to cross another barrier that of the vulcanizing temperatures of around 300°F. But the importance of the wider temperature range is apparent by the comparisons established in Figure VIII.

The difference is most pronounced at temperatures above 212°F; polypropylene has a strength of approximately 2½gr./den. at 248°F (120°C) against about 1 gr./den. for high density polyethylene (compare curves D against C), and still 2 gr./den. at 266°F, (130°C) when polyethylene is already out of

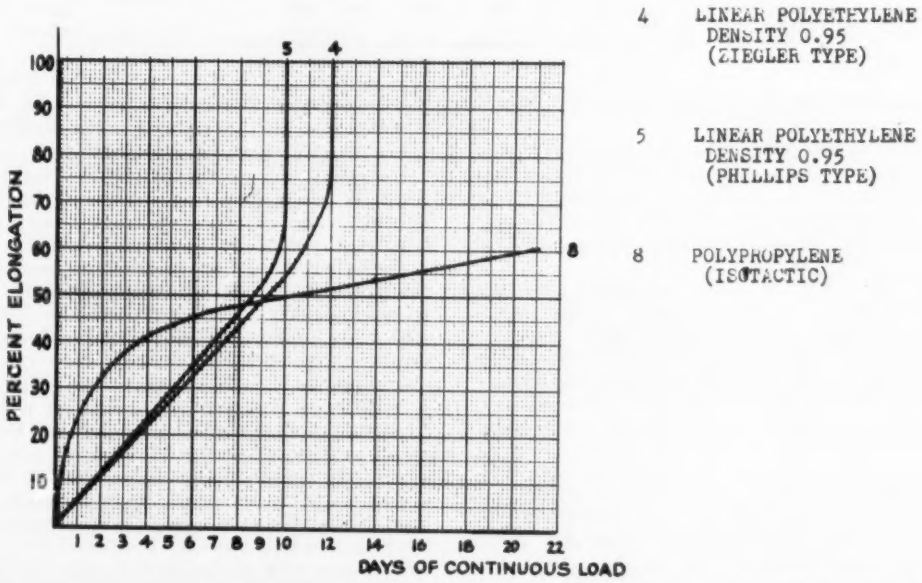
4 LINEAR POLYETHYLENE DENSITY 0.95 (ZIEGLER TYPE)
5 LINEAR POLYETHYLENE DENSITY 0.95 (PHILLIPS TYPE)
8 POLYPROPYLENE (ISOTACTIC)
PERCENT ELONGATION
DAYS OF CONTINUOUS LOAD

Fig. VII—Creep of Oriented Polyolefin Filaments (round, diameter .012") under dead load of 40% of respective breaking strength. Room temperature

Lines 1, 2, 3, are representative for straight-linear 0.96 polyethylene; they show high creep. 4 and 5 are linear of the Ziegler type (Hifax) and "modified" linear Phillips type of densities around 0.95. The cold flow performance is dramatically improved. 6 and 7 are very close to the slope of 5 and represent the performance of Reevon branched type 600 and "modified" linear 760.

Line 8, for polypropylene, differs from the others in as much as a first more pronounced elongation is followed by flattening of the curve. The higher the orientation the flatter the curve.

Upon prolonged time of exposure or under greater dead load the difference becomes even more apparent as shown in Figure VII. Here the filaments 4, 5 and 8 of Figure VI were subjected to the high dead load of 40% of the breaking strength of these filaments which had a tenacity of close to 6 gram per denier. The polypropylene filament (No. 8) continued to perform well commission; on the other hand nylon (Curve E) has at this point still about double the tenacity of that of polypropylene.

With regard to other fiber properties let us mention that polypropylene has higher flexural strength and stiffness than linear polyethylene but remains considerably below that of nylon or unplasticized saran. On the other hand the abrasion resistance of linear polyethylene compares favorably with that of nylon and data of German origin tend to indicate that oriented and heat-set polypropylene fibers are quite superior to the other polymers in this respect.

A possible disadvantage of polypropylene could be the brittleness at low temperatures. This is higher than that of the polyethylenes which are outstanding in this regard. Here again more definite experimental results have to be awaited. Tests made in Reeves laboratories and on ropes at Plymouth Cordage Co. would tend to show that flexibility remains unim-

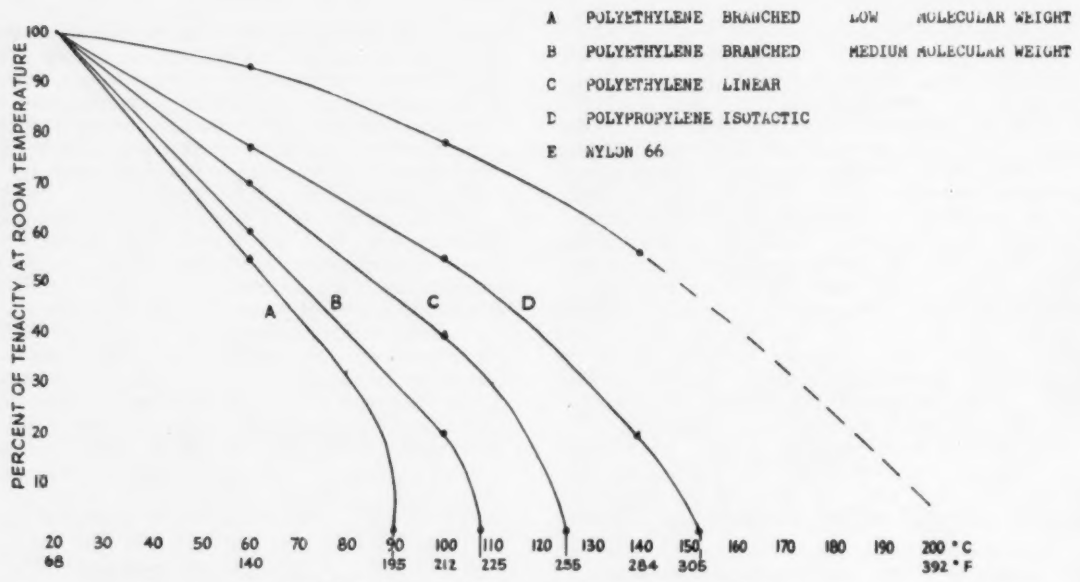

Fig. VIII—Strength-Temperature Relation of Polyolefin Fibers.

paired at temperatures comfortably below the freezing point.

Then there is the poor ultra-violet stability; we tested this in our laboratories and found that clear unstabilized filaments are not worse than was the old branched type polyethylene. We have reasen to believe that this will be overcome as it was for polyethylene.

From all this it will be easily understood that the polypropylene fiber can be or will be a dangerous competitor of linear polyethylene in many applications. But there is another point of potentially higher impact. This is in the field of *fine filaments and yarns*. Polyethylene multifilaments with individual deniers down to 4 or 5 are already in experimental production by Courtaulds in England and also in this country. Polypropylene filaments in the guage of approximately 15 deniers are pilot plant products at Montecatini, Italy, and Farbwerke Hoechst in Germany.

But beyond this, Montecatini demonstrates their "Moplen" as a true textile fiber to be used in apparel of wide variety, woven and knitted, 100% polypropylene or in blends with other fibers, wool, rayon, cotton.

To my knowledge actual commercial production of these yarns has not yet started, but the officials of Montecatini as well as Prof. Natta himself are confident that their position is a strong one. In other countries and of course including ours, work is being done in this direction. We have to await the results.

But there is no doubt about one thing, the polypropylene fibers lend themselves much better to regular textile spinning operations than any of the known polyethylene fibers. This is due to their much better resilience and the surprising phenomenon that the surface of the fiber is less waxy or greasy, therefore less slippery than for polyethylene.

Outlook for the Future

As far as I know, this is about the situation today; where are we going from here? Two years ago I questioned whether polyethylene could not become the Cinderella of the textile fibers. I have not the answer today, but she has already received some glamor because she is much talked about, and she has already changed her name: to polyolefin; but the golden carriage is still waiting outside.

Doubtless, the polypropylene fiber is a step forward. Whether it will or will not supplant linear polyethylene is an open question today. On a recent trip to Europe I learned that one big producer of polyethylene may bypass the high density polymer completely, in favor of polypropylene. In certain European countries where polyolefin production is still in its infancy, the tendency goes back to the refinery to favor production of the basic propylene gas over ethylene.

As a result of recent price changes polypropylene is only at a slight price disadvantage. Basically the polypropylene fiber should even be somewhat less expensive, because of its lower density which gives a yield in yards per pound approximately 6% higher than for linear polyethylene. Therefore polypropylene fiber may be in a stronger position than polyethylene to compete with saran, and in some instances with nylon.

But to integrate the polyolefin fibers fully into textiles proper, industrial production of multifilaments and spun yarn is a pre-condition. Assuming that this should become a reality, economic considerations will be the determining factor. Existing limitations in properties such as softening point, dyeability, hydrophobicity are perhaps not too serious obstacles.

The present polypropylene fiber is a new but certainly not the last chapter in the polyolefin story. New straight polyolefins as mentioned in the beginning, may become available and permit further raising of the practical temperature limits. Perhaps more important may become tailor-made co-polymers; for instance by grafting non-olefinic monomers onto the polyolefin chains, water absorbency and better dyeability will result. Considerable research is now going on in this direction here and in Europe. The future will show whether and to what degree such further developments will be necessary to establish the polyolefins on the broad textile market along with the other synthetic fibers.

Discussion

Following the presentation of Dr. Erlich's prepared talk, there was an open discussion period with questions submitted by the audience. Mr. Gerard K. Lake, president of AATT, served as moderator.

QUESTION: Would you comment on the low temperature strength of polypropylene fiber?

ERLICH: Unfortunately we have no figures which I could give you now in this respect. But perhaps Montecatini or Hercules Powder may have some figures.

RUDY GEERING (Princeton Knitting Mills): Have you tried to crimp-set polypropylene, and with what success?

ERLICH: I believe I can give you a positive answer. It can be crimp-set.

ROBERT BEARD (Eastman): What problems lie ahead in some of these higher polyolefins in bringing them to a commercial status?

ERLICH: As far as I have been informed, these polyolefins are said to be close to commercial production. But I believe there are still a number of—well, not production problems but economics to be considered. This is very much in the future.

DON SETTER (Phillips Petroleum Co.): On the polypropylene that has a different surface, less waxy feeling, can we attribute this to the fact that the polypropylene fiber tends to fibrilate much more than others?

ERLICH: It is correct that some polypropylene fibers at the present time have a tendency to fibrilate more than the well established polyethylene, particularly some of the linear polyethylenes, but we have had the same problems years ago with the branch-type polyethylene, which I believe comes very close. I believe that this is a question of how the fiber is produced, how it is processed, how it is annealed. And if there are difficulties, it is because we probably don't have the method perfectly under control.

CURT WINTER (United Merchants): Did I understand you correctly, Doctor, that polyolefin fibers are presently being produced commercially only in monofilaments and not in conventional multifilaments or staple form?

ERLICH: The first production of polypropylene dates back now, I believe, four months, and we started, of course, in the same direction as we were accustomed to with polyethylene. Therefore, we started with the same type of monofilaments, 600 denier, 400 denier and came down. At the present time, and you will see samples here, we are already one step forward, and I may say we are producing multifilaments of comparatively low denier. But they are not yet in the range of fine deniers which I mentioned. That means in the range of 5, 4, 3, denier, as has been done in the pilot plant in Montecatini.

JAMES TAYLOR (Burlington Industries): What degree of adhesion is possible with polypropylene through the effect of surface oxidation?

ERLICH: The question of adhesion, I should have mentioned it in my paper, is a very difficult one for all polyolefins. As I mentioned, they are paraffins. There are a number of adhesives which have been suggested. They are more or less good. They are more or less sticky. But adhesion materials which are chemically suitable for the paraffin type at the present time are not available yet. There are methods of bonding which have been developed. We have been working on them. But actually adhesion between polyolefin fibers and non-polyolefin materials is still a problem.

Insulated Underclothing

A new line of two-piece Dacron fiberfill insulated underclothing for winter use has been introduced this year by Shelley Sportswear, Inc. The suits, for both men and women, feature completely vertical stitching to prevent shifting of the Dacron fiberfill; a zipper-fly front, and a full-action back. Shelley reports these lightweight undersuits, which weigh an average of 20 ounces, can be easily washed and drip-dried at home. *For further information write the editors.*

Europe *(Continued from Page 48)*

Red China reported it has a pilot plant operating in Kouan-Toung province which is making four tons of "rayon" from sugar cane waste. Commercial production is scheduled . . . . Russia is using gamma rays to kill silk worms and said it is saving millions annually.

Courtaulds to Process Taslan Yarns

Courtaulds, Ltd., announced it had made an agreement with Du Pont for manufacture of Taslan under license. Courtaulds will also get the Taslan trademark for use at home and for export.

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New Mylar-Base Yarn

A new high tenacity Mylar-base yarn, said to have twice the tensile strength of standard metallic yarn constructions, has been announced by Nylco Products, Inc. The new yarn is available in 1/32, 1/50, 1/64 and 1/100 widths. Nylco reports the additional tensile strength opens new applications for metallic yarn in the weaving of upholstery, sweaters, bathing suits, bedspreads, drapes, towelling, women's outerwear, woven labels and many other products. The controlled stretch feature permits standard weaving equipment to handle the new yarn with greater ease and fewer yarn breaks. The high tenacity yarn is available in silver, as well as light and dark shades of gold. *For further information write the editors.*

Industrial Raincoat

B. F. Goodrich has announced a "light but tough" two and one-half pound industrial raincoat made of Neoprene-coated nylon fabric to assure exceptional tear resistance. The new product, weighing about half as much as conventional lightweight raincoats, is colored yellow and is available in standard sizes, 36 to 46 inclusive. *For further information write the editors.*

Tots' Sleeper Sets

"Wear-A-Blanket," a new two-piece sleeper set for young children who throw their blankets off during the night, is now being marketed by Wear-A-Blanket, Inc. The product is designed to completely cover the child when asleep in any position. It is made of soft, lightweight "Cana-Fleece" fabric, a special blend of Celanese acetate, acrilan and nylon, and features elasticized trouser waist and jacquard knitted banks on jacket waist, collar and cuffs. Plastic fabric-covered feet pads give good no-skid protection. Prices range form $6.95 to $7.95. *For further information write the editors.*

TDI Dinner-Dance Staged Nov. 6

A turnout of more than 500 members of the Textile Distributors Institute, and their guests including wives and other family members attended the annual dinner-dance of the Institute on Nov. 6 at the Plaza Hotel in New York City. The gala affair, which was held this year to celebrate the 20th anniversary of the founding of the Textile Distributors Institute, was hailed by those who attended as the most successful and gayest of the many annual dinner-dances held by the Institute.

A highlight of the evening was the presentation of an oil painting and a parchment scroll to Walter Ross of Rosewood Fabrics in recognition of his 20 years of service to the TDI. Mr. Ross served as president of the Institute for eight years, and earlier for 12 years as a vice president. The presentation was made by Nat Leavy, Goldstein & Leavy, president of TDI. George Greenspan, The Cantor-Greenspan Co. Inc., was chairman of the Dinner-Dance Committee.

New Associate Members

Four additional associate members have recently been accepted by the Textile Distributors Institute. They are: Shapiro Brother Factors Corp. 1441 Broadway, New York City; Tennessee Eastman Co., Kingsport, Tenn.; Westerhoff Fabrics Co. 1457 Broadway, New York City; and the Du Pont Co., Textile Fibers Dept., Wilmington 98, Del.

"Burning Shirt" Suit Filed

According to a recent newspaper report, Dan River Mills and J. C. Penney Co. are being sued for $475,000 by Walter A. Baskin of Florence, Ala., who alleges his 15-year-old- son, Howard, was burned when a shirt he was wearing caught fire. The suit, filed against Dan River as maker of the shirt, and Penney as the store that sold it, alleges that the shirt became a torch when it came into contact with flame. It was alleged further that the wearer of the shirt suffered severe injuries as a result.

Freight Rate Service Retained

As a service to members, the Textile Distributors Institute has retained its freight rate service, according to a recent announcement by Miss Hilda A. Wiedenfeld, executive director. The freight rate service is provided by the National Textile Traffic Bureau. It will keep members informed of changes in conditions involving the transportation expenditure of their goods which has become a costly item; of cost saving possibilities through impartial quotation of the lowest applicable freight rates and best routings; auditing of freight bills and collection of any overcharges and claims for loss and damage that may exist; and represent their interests in all legislative matters by protesting unfair and discriminatory freight rates and rulings.

In addition, each member will receive annually a Freight Rate Compilation thoroughly indexed and applicable to all types and quantity shipments. The service covers every possible phase of freight traffic via rail, motor truck and express, including:

1. Furnishing freight rates and routes
2. Tracing and diversion of shipments
3. Auditing of freight bills
4. Filing and collecting claims for overcharge, loss and damage
5. Analyzing freight movements and rate adjustments
6. Analyzing all forms of shipping containers
7. Yearly freight rate compilation and supplements

Open Forum on Labeling Law

An open forum to discuss the significance and impact of the new Textile Fibers Products Identification Act will be held by the Textile Distributors Institute on Thursday Nov. 13 at 3 P.M. in the auditorium of the Engineering Societies Building at 29 W. 39 St., New York City. A major purpose of the meeting is to explore the meaning of the Act to distributors of finished fabrics.

According to Nat Leavy, president of TDI, the overall purpose of the forum will be to formulate suggestions and recommendations for the Federal Trade Commission from every segment of the textile industry for a practical application of the law. A panel of industry leaders will start the meeting with a review of the Act and a summary of informed opinion as to its probable effects. The meeting will then be thrown open to discussion by all those attending so that the views of the entire industry can be heard and weighed.

In announcing the open forum, Leavy pointed out that the Federal Trade Commission has urged members of the industry to come forward with suggestions which will help the Commission in preparing rules for the enforcement of the new Labeling Act.

Vat Dyes Promotion

Greatly expanded sales of vat dyestuffs for the textile industry, reaching 50 million pounds in 1963, is the projected five-year goal of the Vat Dye Institute. To achieve this goal the Institute, a non-profit organization of leading vat color producers in the U. S., is placing primary emphasis on promoting the use of more color on cotton and rayon fabrics where color is not used to any great extent at present, and where color will give added sales value to the material.

The organization also seeks to upgrade color quality in mass marketed cotton and rayon for apparel and decorative fabrics, and to build the use of vat colors in the wash-and-wear field where color fastness is vitally important in maintaining consumer confidence.

Saco-Lowell Reorganizes

A new operating structure, emphasizing long-range advantages of planned diversification, has been announced by Saco-Lowell Shops. Keystone of the reorganization is eventual decentralization of the five segments of the business into five new divisions.

These are: Textile Machinery Division, centered at the company's Easley, S. C., plant under the supervision of E. J. McVey, vice president and assistant general manager; Replacement Parts Division located at the White Horse Road Depot in Greenville, S. C. with A. L. Landau, assistant general manager in charge; Gear and Machine Division, consisting of the Sanford and Jonesboro, N. C., plants with H. K. Smyth, vice president and assistant general manager, in charge; Automotive and Agricultural Parts Division, consisting of the Edwards Plant in Saco, Me., with J. A. Kiely, vice president and assistant general manager, in charge; International Division with headquarters in Boston with W. F. Lowell, Jr., assistant general manager, in charge.

To assist operating executives in charge of each division through the transition period, Thomas J. Ault, president, will personally head each of the five divisions until the transition is completed.

These changes are designed to accomplish two equally important things, Ault said. "First, they will assure our customers in the textile industry that undivided attention will be given to their needs and problems. Second, it will make available to our non-textile customers the benefits of 145 years' experience in the metal working field."

(Continued on Page 75)

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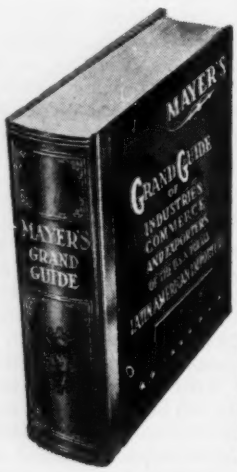

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Dyeing Notes

(Continued from Page 52)

Flame-Retardant Polyethylene

The Polymer Chemicals Division of W. R. Grace & Co. has developed flame-retardant compounds of high density polyethylene in a wide variety of colors. The compounds, marketed as Grex, are being used for housings for electrical components of TV tubes, baby bottle warmers, tank cylinder heads, TV high-voltage sockets, insulators, aircraft parts and ships' air ducts.

Blanket Mothproofing

Eleven different numbers in the all-wool blanket lines presented by Chatham Manufactuirng Co. are protected from moth and carpet beetle damage by Mitin, the mothproofing treatment developed by Geigy. The blankets at retail range from about $15.95 to $55 each. *For further information about Mitin applications write the editors.*

Astonized Finish Data

Onyx Oil and Chemical Co. has issued a new technical bulletin, "The Chemical Resistance of Astonized Finish on Synthetic Fabrics." The bulletin describes various tests using the firm's finish on nylon, Dacron, Orlon and Dynel. Complete technical data concerning the test results are included. *For free copies of the bulletin write the editors.*

New Pigment Red

Interchemical Corp. has announced Aridye Red RF, a new resin-bonded pigment red for fast-color printing cottons, synthetics and blends for apparel and household uses. The new product is said to give cleaner, brighter and stronger application prints, and provide light fastness which meets normal drapery requirements plus good fastness both to repeated washings and drycleanings. *For further information write the editors.*

New Ciba Products

Ciba Company, Inc., has announced two new products. The first, Lyofix PR, is a new modified urea-formaldehyde product designed to overcome some of the major weaknesses of such resin finishes on cottons and rayons. Lyofix PR is a stable precondensate, easily applied from the padder, and a strong catalyst must be used in heat curing of the product.

The second new item, Sapamine WP, is a new type of heat-settling material said to produce durable softening effects fast to repeated laundering even at the boil. It is effective on all natural and synthetic textile fibers, except wool. Applicable by either exhaust or padding methods, it is applied with an acid-forming catalyst. *For further information on both products write the editors.*

Pigment Padding Colors

A line of pigment padding colors is now available for the first time from The Hilton-Davis Chemical Co. The new line, called Skytone, supplements the Company's pigment printing colors and is reported to have good performance on all textile fibers. The new padding colors have been found to have good fastness properties and are compatible with drip-dry finishes. *For further information write the editors.*

Revamp Marketing Set Up

Dyestuff & Chemical Division of General Aniline & Film Corp. has revamped its marketing organization. A key change has been the expansion of the product-line manager concept from two to eight product managers, each responsible for a given line. Supporting the product managers are four staff groups. Harold G. Shelton, division marketing director, said the new set up was established to gear the division's sales efforts to greater product diversification and the expansion of markets for its line of dyes, pigments and chemicals.

Pure Ethylene Urea

Ethylene urea in pure form is now available from Metro-Atlantic, Inc., under the trade name Cyclo-Ethylene Urea. Large scale tonnage production facilities for the product are now being installed at the firm's plant in Centredale, R.I. Metro-Atlantic reports this is the first time that cyclic urea is available in pure, dry form to the synthetic-organic industry, the textile industry, and to resin manufacturers. It is colorless, odorless and a neutral solid which is soluble in water, methanol, ethanol, etc. *For further information write the editors.*

(Continued on Page 73)

Synthetic Yarns

Package dyed by GLOBE

- ORLON
- DACRON
- NYLON
- ACRILAN
- ARNEL
- ZEFRAN
- TEXTRALIZED YARN
- BLEND YARNS

For fast colors, and superior knitting and weaving qualities, you can rely on Globe package-dyed synthetic yarns.

Globe does package dyeing on tubes, skein and warp dyeing and bleaching, warp mercerizing and sizing.

Yarns we process include cotton, rayon, worsted, nylon, linen, blend and novelty yarns, and all synthetics.

Globe Dye Works Co.
1865 1958

4500 WORTH STREET, PHILADELPHIA 24, PA.
JEFFERSON 5-3301

U. S. MAN-MADE FIBER PRICES

This schedule lists the prices of yarns, staple and tow as reported by the producers in October 1958. All prices are given as subject to change without notice.

RAYON FILAMENT YARN

American Bemberg

Current Prices

Regular Production Reel Spun Yarn

Den/Fil	No Turn Skeins	Turned* Skeins & Cones	8½ Turns	High Turn Skeins & Cones 12 Turns	15 Turns	18 Turns
40/30	$1.49	$1.95	....	....	....	$2.08
50/36	1.24	1.50	....	....	....	1.80
65/45	1.14	1.30	....	$1.53	....	1.58
75/60**	1.04	1.18	....	1.41	$1.46	1.49
100/74**	.95	1.08	....	1.33	1.38	1.44
125/60	.94	1.05	$1.09	1.30	....	....
150/120	.93	1.02	1.12	1.27	....	....
300/225	....	.95	....	....	1.08	....
900/372	....	.85	....	....	....	....
1800/744	....	.85	....	....	....	....

* Turn includes twists up to 6 turns on 40 and 50 denier, and up to 5 turns on heavier deniers.

** Spun Dyed Cupracolor Black 15¢ per lb. extra.

"44" HH Spool Spun Yarn

Den/Fil	No Turn Tubes	No Turn Beams	5 Turn Beams	5 Turn Cones	12 Turn Beams	12 Turn Cones	15 Turn Cones
40/30	$1.35	$1.35	....	....	....	....	....
50/36	1.00	1.00	....	....	....	....	....
65/45	1.05	....	....	....	....	$1.42	....
75/45*	.97	....	$1.08	$1.08	$1.31	1.31	$1.39
100/60*	.89	....	1.03	1.03	1.23	1.23	1.31
125/60	.84	....	.99	.99	....	....	....
150/90*	.77	....	.81	.81	1.15	1.15	1.24
150/120	.81	....	....	.93	....	....	....

* Available also in Spun Dyed Cupracolor Black at 15¢ per lb. extra.

"44" HH "Parfe" (Type 51) Spool Spun Yarn

Den/Fil	No Turn Cones	5 Turn Cones	5 Turn Beams	12 Turn Cones	15 Turn Cones
50/36	$1.60	$1.85	$1.85	....	....
75/45	1.45	1.55	1.55	$1.75	$1.85
100/60	1.35	1.45	1.45	1.65	1.75
150/90	1.18	1.25	1.25	1.60	1.70

Nub-Lite (Short Nubbi)

Code	Den/Fil	2½ Turn Natural Cones	2½ Turn Cones*	5 Turn Natural Cones	5 Turn Cones*
1515	160/90	....	....	$1.45	$1.35
1519**	155/90	....	....	1.45	1.35
2008	200/120	....	....	1.06	.96
3002	315/180	$1.10	$1.00	....	....
4011	410/224	1.10	1.00	....	....
6001	600/360	1.08	.98	....	....
8001	860/450	1.08	.98	....	....

* Basic price for cones when dyed. Dyed Colors 30 and 35 cents above basic price. Prices based on 200 lb. dyed lots only. Prices for natural yarn skeins same as natural cone prices.

** Code 1515 can be run in warp or filling.

CUPIONI Type B

Code	Den/Fil	2½ Turn Cones	5 Turn Cones
9610	50/30	....	$2.14
9650	70/45	$1.64	....
9660	100/60	1.48	....
1545	150/90	1.25	....
9720	200/120	1.20	....
9730	285/135	1.10	....
9792	450/225	1.10	....
9814	600/372	1.07	....
9837	940/372	.97	....

"Spun Dyed Cupracolor is spun 150, 285, and 940 deniers at 35¢ per pound extra. Cupracolor Black comes in all deniers."

STRATA SLUB

Code	Den/Fil	Turned Cones	Price
9747	275/225	3½	1.20
9798	450/372	2½	1.10
9823	600/372	2½	1.05
9847	960/372	2½	.97
9885	1290/372	1½	.95
9934	2680/744	1½	.95

"Spun Dyed Cupracolor is spun in 600 and 960 deniers at 35¢ per pound extra."

FLAIKONA

Code	Den/Fil	Turned Cones	Price
9669	150/148	2½	$1.35
9769	300/224	3½	1.40
9807	600/405	2½	1.20
9840	900/450	2½	1.10
9924	1660/744	2½	1.00

"Spun Dyed Cupracolor Black 35¢ per pound extra."

Terms: Net 30 days, F. O. B. shipping point. Minimum freight allowed to consignee's nearest freight station east of the Mississippi River. To points west of the Mississippi River minimum freight allowed to Memphis, Tennessee. Goods after shipment shall be at buyer's risk. Merchandise transported in seller's own trucks or those of its affiliates is sold F. O. B. delivery point.

American Enka Corp.

Current Prices

Effective July 25, 1958

Standard Quality Yarns

Standard Quality Rayon Yarns

NATURAL

Den./Fil.	Luster	Turns		Skeins: Weaving Cones	Beams	Long	Short	Cakes	Knitting Cones	Tubes
50/18	E	5	S						1.56	
50/20	B	2.5	S					1.45		
75/10	B	3	S&Z					.95		
75/18	E	4	S						1.07	
75/30	B	2.5,4	S&Z	1.07	1.07	1.15	1.19	.95		
75/30	B	8	S	1.17		1.32	1.37		1.17	1.22
75/45	P,E	2.5, 4,5	S&Z	1.07	1.07	1.15	1.19	.95	1.07	
75/60	B,P	3,4	Z	1.09				.97		
100/14	B	3	S&Z				1.03	.83		
100/40	B,E	12	S						1.22	
100/40	B,P,E	4,5	S&Z					.83	.91	
100/40	B	6	S	1.10		1.19	1.24	1.02		
100/40	B,P	2.5,4	S&Z	.91	.91	1.00	1.03	.83		
100/60	B	4	S&Z					.83		
100/60	E	2.5	S	.93	.93			.85		
125/40	E	3	Z					.80	.83	
150/40	B,P,E	2.1,3	S&Z	.76	.76	.85	.87	.72	.76	
150/40	B,E	5	S&Z	.84	.84	1.04	1.09	.80		
150/40	B,P,E	8	S&Z	.89	.89	1.09	1.14	.85		
150/90	E	2.1	S&Z	.77	.77			.73		.82
200/40	P	3	Z	.75	.75	.84	.86	.71	.75	
200/40	B	5	S				.95	.88		
250/60	P,E	2.4	Z			.83	.85		.74	
300/30	E	3	S	.75	.79					
300/50	B,E	3	S	.70	.70					
300/60,120	B,P,E	2.1	S&Z	.67	.67	.73	.75	.65	.67	
300/60	B	3.5	S	.67	.67	.73	.75	.65		
300/60	B	7	S	.80			.83			
300/40,120H.T.	B	2.5, 3,4	S	.69	.69			.67		
450/80	B,E	3	S	.63	.65	.70	.72	.61		
600/80	B,E	3	S	.65	.67			.63		
600/120	B	3	S	.63	.65			.61		
900/120	B	3.4	S	.63	.65	.70	.72	.61		
900/120H.T.	B	3.6	S	.65	.65			.63		

B—Briglo P—Periglo (Semi-Dull)
E—Englo (Dull) H.T.—High Tenacity

Jetspun® (Colored Yarns)

Den./Fil.	Tenacity	Turns	Weaving Cones	Beams	Colors
100/40	Regular	2.5S	$1.28	$1.28	All
150/40	Regular	2.1S	1.11	1.11	All
200/40	Regular	8.3S	1.22	1.22	All
300/120	Regular	2.1S	1.03	1.03	All
450/80	Regular	3.0S	.99	.99	All
300/40	High	3.4S	1.05	1.05	All
600/80	High	3.4S	1.01	1.01	All
900/120	High	3.4S	1.00	1.00	All

® Registered Trade Mark for American Enka Solution dyed rayon yarn.

Skyloft (Lofted Rayon Filament Yarns) Natural and Jetspun®

Denier	Denier per Filament	Twist	Cones or Tubes: Natural	Black	Other Colors
1000	7.5	3.5S	$.79	$1.14	$1.14
2200	15	3.5S&Z	.67	.77	.84
2700	15	3.5S&Z	.62	.75	.82
4300	8	3.0S&Z	.64	.74	.81
5300	15	3.0S&Z	.63	.73	.80

American Viscose Corp.

Effective July 24, 1958

Graded Yarns

Denier	Filament	Type	Short Skeins	Long Skeins	Cones Tubes	Beams Spools	Cakes
		Regular Turns					
50	20	Bright & Dull	$	$1.59	$1.56	$1.56	$1.45
60	10	Bright	....	....	1.41	....	1.30
75	10-30	Bright	1.19	1.15	1.07	1.07	.95
75	30	Dull	....	....	1.07	1.07	.95
100	14-40	Bright	1.03	1.00	.91	.91	.83
100	60	Dull	....	....	.93	.93	.85
150	24-40	Bright	.87	.85	.76	.76	.72
150	40	Semi-Dull	.87	.85	.76	.76	.72
150	40	Dull	....	....	.76	.76	.72
150	90	Dull	....	....	.77	....	.73
200	10-44	Bright	.86	.84	.75	.75	.71
250	60	Semi-Dull & Dull	.85	.83	.74	.74	.71
300	15	Bright	....	.71	.67	.67	....
300	30	Dull Flat Filament	....	....	....	.79	....
300	44	Bright & Dull	.75	.73	.67	.67	.65
300	234	Dull	....	....	.77	....	.75
450	100	Bright	....	.70	.63	.65	.61

Brown Dye for Nylon

Cibalan Red Brown RL has become the 33rd and newest member of Ciba Company's Cibalan series. The new dye is a homogeneous product said to give good evenness of shade in exhaust dyeings. Feature of the new color, Ciba reports, is its light fastness—rated at better than 100 Fade-Ometer hours on wool and over 150 hours on nylon. *For further information write the editors.*

New Goodrich Adhesive

"A-916-B," a new polymer laminating adhesive, has been announced by B. F. Goodrich. The adhesive is said to form a lasting bond between hitherto incompatible surfaces, requiring no added resin or other tackifier. Areas of use suggested for the new product include: laminating films of mylar, cellophane, cellulose acetate, pliofilm, polyethylene, polyvinyl chloride, saran, nylon or rayon fabric or yarn, and paper to metallic foils or to any combination of polymeric films, and many other applications. *For further information write the editors.*

Anti-Static Finish

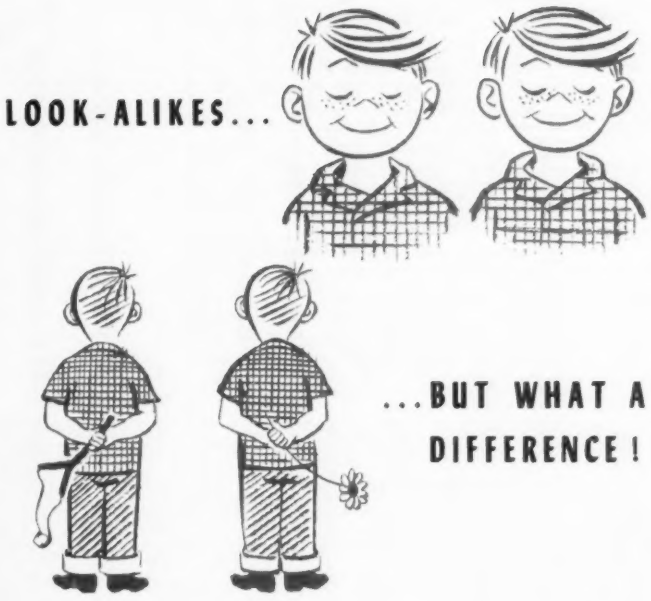
Burlington Men's Wear Fabrics Co. and Pacific Mills' Rhodiss Division are now applying Astonized anti-static finish to fabric blends of Dacron and Orlon. The product is manufactured by the Onyx Oil & Chemical Co.

The Astonized men's wear fabrics are now being offered to the trade for the 1959 summer suiting season. Onyx reports Astonized fabrics give greater wearing comfort because of their "breathing" and static-free qualities. The Onyx product is said to actually surround the man-made fibers with a layer of insoluble resin which contain high concentrations of ions which protect the fabric against static build-up. *For further information write the editors.*

New Textile Dye Center

The Hilton-Davis Chemical Co. has opened a modern research and sales distribution center for textile dyestuffs in Greenville, S. C. One of the features of the warehouse section is a huge "cold storage" vault to keep dyes fresh despite outside weather conditions. An average of 750,000 pounds of dyestuffs is stored in the warehouse, which is set up like a supermarket for quick identification and selection of dyes. The center also contains a large mixing room where the company's Spectrosols—a line of stabilized diazo printing compounds—are custom-made to mill requirements.

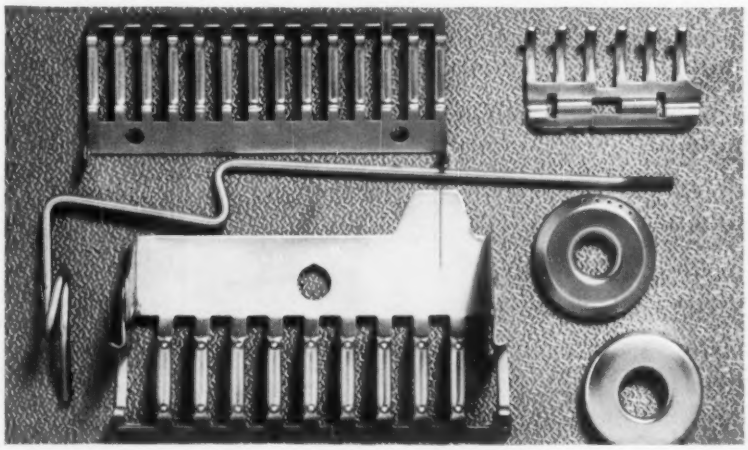
S. Y. Stribling III is manager of the center, with the laboratory staff headed by Wilbur K. Hammett.



The fact that all Hard Chromium Plating looks the same may mislead you.

During 24 years of successful experience, we have proven many times to our customers (many of whom have been with us for 20 years or more) that our fast, efficient service and "know how" mean "dollars in their pockets."

Why go through the trial and error method when we are experts in our chosen field . . . top quality Hard Chromium Plating.



The leading name in textile Hard Chromium Plating, both satin and polished finish.

Walhard

WALTON and LONSBURY

79 NORTH AVENUE ATTLEBORO, MASSACHUSETTS

600	100	Bright & Dull	....	.70	.63	.65	.61
900	50-60-100-150	Bright	....	.70	.63	.65	.61
1200	75	Bright	....	.70	.63	.65	....
2700	150	Bright	....	.70	.63	.65	....

Extra Turns Per Inch

75	30	Bright	6-Turns	$1.37	$1.32	$1.17	$1.17	$ ....
100	40	Bright	6-Turns	1.24	1.19	1.10	1.10	1.02
150	40	Bright	6-Turns	1.09	1.04	.84	.84	.82
200	44	Bright	6-Turns	....	.95	.90	.90	....
300	15	Bright	5-Turns	....	....	.80	.80	....
300	44	Bright	4.3-Turns	....	....	.70	....	.68
300	44	Bright	6-Turns	.83	.81	.80	.80	.78
300	120	Rayflex	6-Turns	....	....	.87	.87	....
600	30	Bright	5-Turns	....	.78	.76	.76	.74

Rayflex Yarns

75	30	Rayflex	$	$	$1.15	$1.15	$1.06
100	40	Rayflex	....	....	1.00	1.00	.92
150	40-60	Rayflex	....	....	.79	.79	.75
200	75	Rayflex	....	....	.78	.78	.74
300	60-120	Rayflex	....	....	.69	.69	.67
450	120	Rayflex	....	....	.65	.65	.63
600	234	Rayflex	....	....	.65	.65	.63
900	350	Rayflex	....	.72	.65	.65	.63

Thick & Thin Yarns

150	40-90	Bright & Dull	$	$	$1.15	$	$ ....
200	75	Bright & Dull	....	....	1.05	....	....
300	120	Bright & Dull	....	....	.95	....	....
450	100	Bright & Dull	....	....	.89	....	....
490	120	Bright & Dull	....	....	.95	....	....
900	350	Dull	....	....	1.00	....	....
920	120	Bright & Dull	....	....	1.00	....	....

Colorspun Yarns

Denier	Type	Cones/Tubes Beams/Spools
75	Regular Strength	$1.60
100	Regular Strength	1.28
150	Regular Strength	1.11
200	Regular Strength	1.08
300	Regular Strength	1.03
450	Regular Strength	.99
600	Regular Strength	.99
900	Regular Strength	.99
300	High Strength	1.05
900	High Strength	1.00
300	Regular Strength 5-Turns	1.13

Avicron Yarns

Denier	Filament	Cones/Tubes Beams/Spools
1800	100-200 Singles & 2 Ply	$ .68
2700	150-300-980 Singles & 2 Ply	.65

Viscose Filament Yarns

The following material deposit charges are required:

Metal Section Beams	$170.00 each
Metal Section Beam Racks	75.00 each
Metal Tricot Spools—14" flange	30.00 each
21" flange	60.00 each
32" flange	150.00 each
Metal Tricot Spool Racks—14" flange	135.00 each
21" flange	100.00 each
32" flange	75.00 each
Wooden Tricot Spool Crates	20.00 each
Cloth Cake Covers	.05 each

Same to be credited upon return in good condition—freight collect.

Celanese Corp. of America

Current Prices

Effective July 24, 1958

Viscose Rayon Filament Yarn Prices
Bright and Dull

Denier/Fil./Twist		Beams	Cones	Cakes
75/30/3			1.03	.91
100/40/2Z		.90		
100/40/3			.89	.81
100/40/5			.95	.85
100/60/2Z			.89	
100/60/3			.91	.83
125/40/2Z		.86		
125/40/3			.87	.78
150/40/0	NS		.68½	
150/40/2Z	NS	.75		
150/40/3			.73½	.70
150/40/5			.84	.82
150/40/8			.90	.88
150/90/0	NS		.71½	
250/60/0			.68	
250/60/3			.74	.71
300/50/0	NS		.64	
300/50/2Z	NS	.66		
300/50/3			.64½	.63
450/120/0	NS		.61	

Terms: Net 30 days. Shipments prepaid to any destination in U.S.A. east of the Mississippi River. Shipments west of the Mississippi will be made on a collect freight basis and allowance will be made for the lowest transportation cost to the point of river crossing.

Prices subject to change without notice.

All previous prices withdrawn.

• No transportation allowed (F.O.B. shipping point).

Prices on unlisted items can be obtained upon request.

Orders are subject to conditions of sale appearing on our acknowledgments of orders.

E. I. du Pont de Nemours & Co.

Textile Fibers Dept.

Current Prices

Effective with orders July 25, 1958

Bright and Dull

Den.	Fil.	Turns/Inch Up to		Cones (A) Beams	Cones (A) Tubes	Cones (A) Cakes
40	20	3	Textile "Cordora"•		$1.90	$1.85
50	20	3			1.63	
50	20	3	Textile "Cordura"		1.65	1.60
50	35	3	Textile "Cordura"		1.70	1.65
75	10	3	Bright			.95
75	30	3		1.07	1.07	.95
100	15	3	Bright			.83
100	40	3	Bright	.91	.91	.83
100	60	3	Dull		.93	.85
125	50	3		.89	.89	.80
150	40	3		.76	.76	.72
150	60	3	Bright	.76	.76	
150	60	3	Textile "Cordura"		.815	.785
150	90	3	Dull		.77	
150	100	3	Dull		.77	
300	50	2.5		.67	.67	.65
300	120	3	Textile "Cordura"	.68	.68	.66
450	72	3		.65	.63	.61
600	96	3	Bright	.65	.63	.61
600	240	3	Textile "Cordura"	.66	.64	
900	50	3	Bright	.65	.63	.61
900	144	3	Bright	.65	.63	.61
1165	480	3	Textile "Cordura"	.66	.64	.62
1800	100	3	Bright		.63	
2700	150	3	Bright	.65	.63	

Thick and Thin

100	40	3	#7 Bright		1.38	
150	90	3	#7 Bright		1.05	
200	80	3	#7 Bright		1.05	
450	100	3	#7 Bright		.89	
1100	240	3	#60 Bright		1.00	
2200	480	3	#60 Bright		.95	

Monofils

150	1	3	Bright	1.35	1.35	
300	1	3	Bright	1.15	1.10	
600	1	3	Bright		1.00	

Plush

300	30	3	Dull	.79	.75	

(A) 2¢/lb. additional for cones less than 3#.

Terms: Net 30 days.

Domestic Freight Terms are F.O.B. shipping point, freight prepaid our route to points east of the Mississippi River within the continental limits of the United States, for points west of the Mississippi River freight allowed to the Mississippi River crossing nearest purchaser's mill if shipped overland, or port of exit of purchaser's choice east of Mississippi River.

• "CORDURA" and "SUPER CORDURA" are Du Pont's registered trade-marks for its high tenacity rayon yarn.

Industrial Rayon Corp.

Effective July 29, 1958

Continuous Process Textile Yarns

Denier	Filament	Turns per In.	Type	2.8 Lb Cones	4.4 Lb Cones and Tubes	Beams	2.2 Lb Tubes
150	40	2.5 "S"	Bright	.76		.76	
150	40	2.5 "S"	Luster #4	.77		.77	
150	40	2.5 "S"	Bright Intermediate strength	.77			
200	20	2.5 "S"	Bright	.75			
300	44	2.5 "S"	Bright	.67		.67	
450	60	2.0 "S"	Bright		.63	.63	
600	90	1.5 "S"	Bright		.63	.63	.63
900	50	2.0 "S"	Bright		.63	.63	.63
900	150	1.5 "S"	Bright		.63	.63	.63
1100	480	2.0 "Z"	Bright extra strong		.65	.65	.65

Lustre #4 is semi-dull.

Terms: Net 30 days f.o.b. point of shipment; title to pass to buyer on delivery of goods to carrier. Domestic transportation charges prepaid with transportation allowed at lowest published rate to all points east of the Mississippi River.

Prices are subject to change without notice.

North American Rayon Corp.

Current Prices

Prices Effective July 25, 1958

First Quality Yarns	Den/Fil	Twist	Knitting• Cones	No Twist Knitting Cones	Cones Weaving Cones	Beams, Tubes••	Velvet Beams & Cones	Untreated Cakes
	75/30	3.5				1.07	1.07	.95
	75/30	7				1.20	1.20	
	75/30	12				1.28	1.28	
Normal	75/30	15				1.30	1.30	
Strength Yarns	75/30	20				1.33	1.33	
NARCO	100/40/60	3.5				.91	.91	.83
	100/40	12				1.15	1.15	
	125/52/60	3				.89	.89	.80
	150/42	0		.68½				
	150/42/60	3	.74½			.76	.78	.72
	300/75	0		.65				
	300/75	3	.87			.67		.65
	900/46	2.5	.63			.63		
	1800/92	2.5	.63			.63		

• Oiled Cones $.01 Per Pound extra for Graded Yarns only.

•• 1 lb. tubes $.02 Per Pound extra for Graded Yarns only.

Terms: Net 30 days, F.O.B. shipping point, minimum freight allowed to consignee's nearest freight station east of the Mississippi River. To points west of the Mississippi River minimum freight to Memphis, Tennessee allowed. Goods after shipment shall be at buyer's risk. Merchandise transported in seller's own trucks or those of its affiliates is sold F.O.B. delivery point.

Prices subject to change without notice.

Saco-Lowell (Continued from Page 70)

"Saco-Lowell intends to maintain its leadership in the textile machinery field and at the same time develop long-range stability for the company by developing lines of business to offset the cyclical fluctuations that have been characteristic of the textile business for over a century and a half."

Ault emphasized that this revision of the company's structure is evidence of Saco-Lowell's intention to maintain diversification as a permanent rather than temporary phase of company policy. In addition to the new divisional organizations, Saco-Lowell will continue its executive offices in Boston to provide staff services to the line divisions and to coordinate Company operations as a whole.

Improved Nylon Tires

New tubeless "low profile" oval-shaped passenger tires with nylon tire cords having a tensile strength of 52 pounds have been developed by United States Rubber Co. In these tires 3½ pounds of nylon are used compared with two pounds generally described as normal in nylon casings. The nylon cord is 1680 denier, two-ply, compared with the 840 denier, two-ply, usually used in nylon cord tires. The 840 denier is used in about 95% of the tire industry applications.

PTI Enrollment Rises

The largest freshman class since 1951, 115 students, enrolled this fall at Philadelphia Textile Institute, Germantown, Pa. Upper classmen enrollment totaled 260. PTI is celebrating its 75th Diamond Jubilee fall semester.

Textile News Briefs

Arnold, Hoffman Changes

Arnold, Hoffman & Co., Inc., has made changes involving expansion and relocation of major units of their technical service laboratories. The firm's Teterboro, N.J., laboratory equipment and technical personnel have been transferred to and combined with those of the Providence, R.I., laboratory. All Southern plants are now being accommodated by the firm's expanded Charlotte, N. C., laboratory.

The Charlotte facility is able to handle continuous dyeing processes, textile printing, resin and non-resin finishing, in addition to the usual routine services. Trained technicians have been added to personnel at both the company's Southern and Northern regions.

Swim Trunk Patent

Franklin Sweater Mills, Inc., reports it has been granted U.S. Patent 2,854,669, covering the construction of form-fitting knitted stretch swim trunks. The new trunks, Franklin states, provide improved fit for individual sizes even though the trunks are made in one size. Built-in qualities enable one size to fit a range of sizes, covering the entire field of men's, boys' and junior sizes.

New Fiber Glass Plant

Construction of a 350,000 square foot plant for the Carolina Fiber Glass Division of Pittsburgh Plate Glass Co. is reported to be progressing rapidly. The $20,000,000 facility is located on a 135-acre site near Shelby, N. C. The plant will produce all known types of continuous filament yarns and, when completed will have an annual capacity of 25 million pounds.

(Continued on Page 79)

Loose and slack end problems are minimized by Milton's true-running, easily adjustable, heavily ribbed flanges (cast iron or aluminum alloy). They're locked to the barrel with a pressure block threaded on the inner surface, preventing damage to barrel threads. Flange diameters: 12" to 28", in 2" increments.

Beam barrels are furnished in standard or extra heavy type with Milton's exclusive stud construction providing easy interchangeability of attachments and simplifying shaft replacement.

Milton Warp Beams for broad, narrow fabric, ribbon, velvet, carpet and special looms are backed by over 25 years of rugged service . . . furnished to users' specifications for Draper and Crompton & Knowles looms. Write for free bulletin.

Over a Quarter Century of Dependability in Yarn Beams

MILTON MACHINE WORKS, INC.

DESIGNERS • ENGINEERS • MANUFACTURERS

MILTON • PENNA.

RAYON HIGH TENACITY YARN and FABRIC

American Enka Corp.

Effective June 1, 1957

Tempra (High Tenacity)

Denier	Elongation	Beams & Cones
1100/480	Low	.59
1230/480	High	.59
1650/720	Low	.55
1820/720	High	.55
2200/960	High & Low	.54

Suprenka I (Extra High Tenacity)

1650/720	Low	.58
1900/720	High	.58
2200/960	Low	.57

Suprenka II

1100/720	Low	.63
1650/1100	Low	.58
2200/960	High	.57

Terms: Net 30 days, f.o.b. Enka, North Carolina, or Lowland, Tennessee; minimum freight allowed to first destination east of the Mississippi River.

American Viscose Corp.

Effective Nov. 1, 1956

Revised May 29, 1958

Super "Rayflex"

Denier	Filament	Twist	Beams	Cones-Tubes*
1100	980	0	.63	.63
1100	980	Z	.63	—
1650	980	0	.58	.58
1650	980	Z	.58	—
1780	980	0-Z	—	.58
2200	980	0	.57	.57

Tire Yarn

1100	490	Z	.59	—
1650	980	0	.55	.55
1650	980	Z	.55	—
2200	980	0	.54	.54

High Strength

1150	490	Z	.59	.59
1230	490	Z	.59	.59
1650	980	Z	.55	.55
1875	980	Z	.55	.55
2200	980	Z	.54	.54

* When tube put up—10# spinning tube.

First quality yarns are sold "Not Guaranteed for Dyeing".

Tire Fabric

	Tire Yarn Fabric	Super "Rayflex" Fabric
2200/980/2	.625	.655
†1100/490/2	$.71	$.75

Above prices based on 80% minimum Carcass, 15% maximum Top Ply, 5% maximum Breaker.

1650/980/2

*Production Factor			
525-Open	Carcass	$.635	$.665
300-490	Top Ply	.645	.675
115-275**	Breaker	.67	.70

* Determined by dividing total ends by picks.

** Orders limited to 5% of total 1650 Fabric booked for any given period.

† Revised.

Cord on cones in regular Tire Yarn twists same as fabric prices.

Other twist combinations—prices quoted on request.

When supplied, yarns and cords in special packages take premiums indicated.

10.5 oz. Wardwell tubes	.05
1.5 lb. Regular Braider tubes	.035
Adhesive Dipped yarn	.05

The following deposit charges are made on invoices.

Beams	$55.00 each
Crates (Metal)	75.00 each
Fabric Shell Rolls	3.50 each

Same to be credited upon return in good condition—freight collect.

Terms: Net 30 days.

Celanese Corporation of America

Effective December 27, 1955

Supersedes September 12, 1955

Fortisan Yarn Prices

Denier	Packages	Natural	Black
30/2.5/40	2 lb. Cones	$3.00 lb.	$3.35 lb.
60/2.5/80	4 " "	2.40 "	2.75 "
90/2.5/120	4 " "	2.25 "	2.60 "
120/2.5/160	4 " "	2.05 "	2.40 "
150/2.5/180	4 " "	1.95 "	2.30 "
270/2.5/360	4 " "	1.85 "	2.20 "
300/2.5/360	4 " "	1.85 "	2.20 "
60/2.5/80 Olive Green—Spun Dyed—OG106		4 lb. Cones	3.50 lb.

Terms: Net 30 days. Shipments prepaid to any destination in U.S.A. east of the Mississippi River. Shipments west of the Mississippi will be made on a collect freight basis and allowance will be made for the lowest transportation cost to the point of river crossing.

Prices subject to change without notice.

All previous prices withdrawn.

* No transportation allowed (F.O.B. shipping point).

Prices on unlisted items can be obtained upon request.

Orders are subject to conditions of sale appearing on our acknowledgments of orders.

Fortisan-36 Rayon Yarn Bright

Denier and Filament	Twist	4# cones	8# cones	Tubes	Beams
270/280	0.8Z	$2.30			
300/280	0.8Z	$2.05			
300/280	3Z	$2.20			
400/400	0.8Z	$1.75			$1.70
400/400	0			$1.75	
800/800	0.8Z	$1.25	$1.25		$1.20
800/800	3Z	$1.40			
800/800	0			$1.25	
1600/1600	0.8Z	$1.15	$1.15		$1.10
1600/1600	2½Z	$1.30			
1600/1600	0			$1.15	

Terms: Net 30 days. Shipments prepaid to any destination in U.S.A. east of the Mississippi River. Shipments west of the Mississippi will be made on a collect freight basis and allowance will be made for the lowest transportation cost to the point of river crossing.

Prices subject to change without notice.

All previous prices withdrawn.

* No transportation allowed (F.O.B. shipping point).

Prices on unlisted items can be obtained upon request.

Orders are subject to conditions of sale appearing on our acknowledgments of orders.

E. I. du Pont de Nemours & Co.

Textile Fibers Dept.

Current Prices

Effective with orders May 2, 1958

"Super Cordura"*

Den Fil	Turns/in	All Packages
1100-720	2	$.63
1200-720	2	.63
1530-960	2	.61
1600-960	2	.58
1650-1100	2	.58
1800-1100	2	.58
2200-1440	2	.57
2400-1440	2	.57

Terms: Net 30 days.

Domestic Freight Terms are F.O.B. shipping point, freight prepaid our route to points east of the Mississippi River within the continental limits of the United States, for points west of the Mississippi River freight allowed to the Mississippi River crossing nearest purchaser's mill if shipped overland, or port of exit of purchaser's choice east of Mississippi River.

* "CORDURA" and "SUPER CORDURA" are DuPont's registered trade-marks for its high tenacity rayon yarn.

Industrial Rayon Corporation

Effective July 29, 1958

Tiaralon Yarns

Denier	Filament	Turns Per In.	Type	4.4 lb. Cones
450	1	0	Bright and Dull	1.00
450	1	2	Bright and Dull	1.00
1250	1	0	Bright and Dull	1.00
1250	1	2	Bright and Dull	1.00

Tubes— 5¢ per pound over cone prices.

Skeins—10¢ per pound over cone prices.

Terms: Net 30 days f.o.b. point of shipment; title to pass to buyer on delivery of goods to carrier. Domestic transportation charges prepaid with transportation allowed at lowest published rate to all points east of the Mississippi River.

Prices are subject to change without notice.

North American Rayon Corporation

Super High Strength Continuous Yarn Types 550-552		**Cones**	**Beams**
1650/720	1.5Z	.58	.58
Super Super High Strength Continuous Yarn Type 630			
1100/720	2.5Z	.63	.63
1650/720	2.0Z	.58	.58
Tire Cord Fabrics			
Super High Strength Type 550			**Rolls**
1650/720			.66½
Super Super High Strength Type 630			
1100/720			.75
1650/720			.66½

* Oiled Cones $.01 per pound extra for Graded Yarns only.

** 1 lb. Tubes $.02 per pound extra for Graded Yarns only.

Terms: Net 30 days, f.o.b. shipping point. Minimum freight allowed to consignee's nearest freight station East of the Mississippi River. To points West of the Mississippi River minimum freight to Memphis, Tenn. allowed. Goods after shipment shall be at buyer's risk. Merchandise transported in seller's own trucks or those of its affiliates if sold f.o.b delivery point.

ACETATE FILAMENT YARN

American Viscose Corp.

Current Prices

Effective December 21, 1956

Bright and Dull

* Intermediate Twist

Denier & Filaments	Cones & 4-6 Lb. Tubes	Twister Tubes	Warps	Spinning Cones	Twist Warps
55/14	$1.04	$1.02	$1.05	$.98	$.99
75/20	1.00	.98	1.01	.94	.95
100/28	.95	.93	.96	.89	.90
120/32	.86	.84	.87	.80	.81
150/41	.77	.76	.78	.72	.73
200/54	.73	.72	.74	.69	.70
300/80	.69	.68	.70	.65	.66

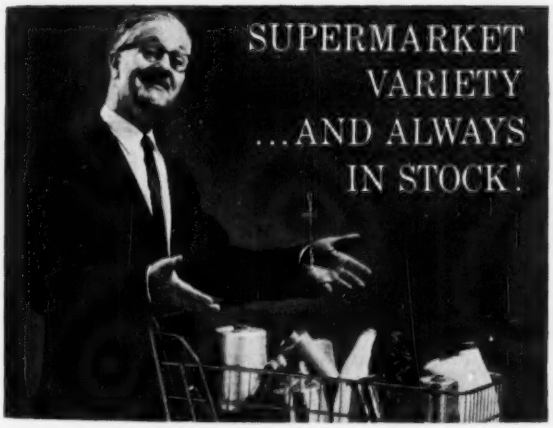
* Standard Twist 2¢ additional.

Terms: net 30 days.

Celanese Corp. of America

Current Prices

Effective December 20, 1956



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RAYON • NYLON • ACETATE YARNS
graded and inferiors—all put ups.

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supported and unsupported

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NYLON • DACRON

Exclusive selling agents for Synthetic Yarns Inc. and Synfoam Yarns Inc., Lowell, Mass.

Malina COMPANY

®T. M.

125 WEST 41st STREET, NEW YORK 36, LOngacre 3-4200

Slit Glass Cloth Tapes

Flightex Fabrics Inc., manufacturer of woven glass fabrics for the reinforced plastics industry, has developed a supplementary line of slit glass cloth tapes in widths up to 12 inches. The new product has applications in the boating, tooling, chemical and other low pressure molding industries where added structural strength is needed. The tape is finished for compatibility with all present molding resins. *For further information write the editors.*

Plastifelts Developed

Felters Co. has developed a basic series of three styles of non-woven felt in combination with plastics and synthetics. Felters' N-50 treated all-wool felt encases each fiber in a protective nylon sheath, to provide extra wear, superior resistance to abrasion and friction, plus extra strength without increased density, the company reports. Another style uses a special polyethylene film surface to provide three distinctive properties for merchanical applications. The new Plastifelts also include a Teflon-coated felt, one of the first applications of this plastic to felt use. *For further information write the editors.*

Ban-Lon Lingerie Laces

Thomas Wilson and Co., Inc., is introducing for the first time a group of Ban-Lon lingerie and bra laces made of "Textralized" yarn. Wilson also is featuring a collection of Ban-Lon laces designed for use by the dress and blouse trade. Matching sets of edgings, insertions and galloons are available in a variety of widths, with patterned cut-outs in varying sizes. *For further information write the editors.*

Hatch 50th Anniversary

Herbert H. Hatch

September marked the 50th anniversary of Herbert H. Hatch, president of Hatch Textile Research, Inc., in the textile industry. Hatch entered his father's public textile adjusting business in 1908. Twelve years later, under his own name, he opened an adjustment office in New York. As a partner, he founded Hatch & Reutlinger in 1926, and some 10 years later the partnership was dissolved and the textile testing laboratory was named Hatch Textile Research, Inc.

Hatch helped establish the Textile Adjusters Association and was its first secretary. In 1933 he assisted in establishing a commercial textile laboratories' Code of Ethics. He also helped charter the Association of Textile Laboratories and Consultants, now known as The American Association for Textile Technology, Inc. Mr. Hatch's firm handles many phases of textile testing and specializes in construction, wearability, wash-and-wear, and quality control tests for all textile users and distributors.

At ATLANTIC color specified is color delivered . . . assured by superior techniques and facilities acknowledged in the industry.

YARN DYEING

Rayon • Nylon • Acetate • Stretch Yarns
Cakes • Packages • Skeins

Custom-matched colors. Large dye batches.
Any degree of color fastness. Packaged as desired.
PROMPT DELIVERY

Atlantic
Rayon Corporation

125 WEST 41st ST., NEW YORK 36, LONGACRE 3-4200
PLANT: 86 CRARY ST., PROVIDENCE, R. I.

Bright and Dull

Denier and Filaments	Intermediate Twist 4 & 6-Lb Cones	Beams	4 & 6-TM Tubes	Spinning Twist 4-Pound Cheeses	Cones	Beams	O Twist Tubes
45/13	$1.17	$1.18	$	$	$	$1.12	$ ....
55/15	1.04	1.05	....	....	.98	.99	.925
75/20	1.00	1.01	.98	....	.94	.95	.84
75/50	1.02	1.03	1.00	....	....	.97	.89
100/26-40	.95	.96	.93	....	.89	.90	.81
120/40	.86	.87	.85	....	.80	.81	....
150/40	.77	.78	.77	.77	.72	.73	.69
200/52	.73	.74	.73	....	.69	.70	....
300/80	.69	.70	.69	....	.65	.66	.63
450/120	.67	.68	.67	....	.63	.64	....
600/160	.65	.66	.65	....	....	....	....
900/80-240	.63	.64	.63	....	....	....	.61

150 Denier 12-TM Tubes ..... .76
55/0/15 Dull Tricot Beams ..... .985
2-Pound Cheeses ..... .01 Less Than 4-Pound Cheeses
2-BU and 4-Bu Tubes ..... Same Price as 4 and 6-Lb. Cones
2-Lb. Twist Tubes ..... .01 Less Than 4 & 6-Lb. Twist Tubes on 120, 200 and 300 Denier Intermediate Twist

Terms: Net 30 days. Shipments prepaid to any destination in U.S.A. east of the Mississippi River. Shipments west of the Mississippi will be made on a collect freight basis and allowance will be made for the lowest transportation cost to the point of river crossing.

Prices subject to change without notice.

All previous prices withdrawn.

• No transportation allowed (F.O.B. shipping point).

Prices on unlisted items can be obtained upon request.

Orders are subject to conditions of sale appearing on our acknowledgments of orders.

Celaperm Filament Yarn Prices

Denier and Filaments	Intermediate Twist 4 & 6-Lb. Cones	Beams	Spinning Twist Cones	Beams
55/15	$1.37	$1.38	$1.31	$1.32
75/20	1.34	1.35	1.28	1.29
100/26	1.28	1.29	1.22	1.23
120/40	1.19	1.20	1.13	1.14
150/40	1.11	1.12	1.06	1.07
200/52	1.05	1.06	1.01	1.02
300/80	1.01	1.02	.97	.98
450/120	.99	1.00	.95	.96
600/160	.97	.98	....	....
900/80	.94	....	....	....

3 to 5 Turns on Cones or Beams — $.02 Additional

Celaperm Black Yarn Prices

Effective March 11, 1955

Denier and Filaments	4 & 6-Lb. Intermediate Twist Cones	Beams	Spinning Twist Cones	Beams
55/15	$1.17	$1.18	$1.11	$1.12
75/20	1.14	1.15	1.08	1.09
100/26	1.08	1.09	1.02	1.03
120/40	.99	1.00	.93	.94
150/40	.91	.92	.86	.87
200/52	.85	.86	.81	.82
300/80	.81	.82	.77	.78
450/120	.79	.80	.75	.76
600/160	.77	.78	....	....
900/80	.74	....	....	....

Terms: Net 30 days. Transportation prepaid or allowed to any destination in U.S.A. East of Mississippi River. Transportation prepaid to any U.S.A. destination West of Mississippi River, but charge is made for the portion of transportation from river crossing nearest customer's location.

Prices subject to change without notice.

All previous prices withdrawn.

Note: Prices on unlisted items can be obtained upon request.

Orders are subject to conditions of sale appearing on our Acknowledgments of Orders.

Arnel Triacetate Yarn Prices
Bright & Dull

Effective August 19, 1958

Supersedes April 18, 1958

Denier and Filaments	Cones	Beams	Thick and Thin Cones
55/WKZ/15	$	$1.10	$ ....
55/2Z/15	1.26	1.27	....
75/WKZ/20	....	1.16	....
75/2Z/20	1.21	1.22	....
100/2Z/26	1.14	1.15	....
150/2Z/40	.95	.96	....
200/2Z/52	.92	.93	1.25
300/2Z/80	.87	.88	1.23
450/2Z/120	.86	.87	....
600/2Z/160	.85	.86	1.21

3 to 5 Turns on Cones or Beams—$.02 Additional
Premium for Black Arnel—$.25 Per Pound
Premium for Navy Arnel—$.37 Per Pound

Terms: Net 30 days. Transportation prepaid or allowed to any destination in U.S.A. East of Mississippi River. Transportation prepaid to any U.S.A. destination West of Mississippi River, but charge is made for the portion of transportation from river crossing nearest customer's location.

Prices subject to change without notice.

All previous prices withdrawn.

Note: Prices on unlisted items can be obtained upon request.

Orders are subject to conditions of sale appearing on our Acknowledgments of Orders.

E. I. du Pont de Nemours & Co.

Textile Fibers Dept.

Current Prices

Acetate

Denier & Filament	Zero Twist Tubes	Beams	Low Twist Cones	Beams	Intermediate Twist 2 & 4 Lb. ⅝" Tbs.	4 & 6 Lb. Tw. Tbs.	Cones	Bms.
45-13	$1.03	$1.11		$1.12				
55-18	.925	.985		.99			$1.04	$1.05
55-24	.925	.985		.99			1.04	1.05
75-24	.84	.94		.95		$.98	1.00	1.01
75-50				.97		1.00	1.02	1.03
100-32	.81	.89		.90		.93	.95	.96
120-50	.77	.80		.81		.85	.86	.87
150-40	.69	.72	.72	.73	.77	.77	.77	.78
200-60	.68		.69	.70	.73	.73	.73	.74
240-80			.67				.71	
300-80	.63	.65	.65	.66	.69	.69	.69	.70
450-120	.63		.63	.64	.67	.67	.67	.68
600-160					.65		.65	.66
900-44					.63		.63	.64
900-240					.63		.63	.64
1800-88					.61		.61	.62
2700-132					.61		.61	.62
3000-210					.61			.62

(A) Regular Twist (2.9 and 5 T.P.I.)—add $.02 to Intermediate Twist Price.

(B) 1 lb. ⅝" Tubes—add $.02 to 2 & 4 lb. ⅝" Tube Price.

Color-Sealed

Denier & Filament	Zero Twist Tubes	Beams	Low Twist Cones	Beams	Intermediate Twist Twisted Tubes 2 Lb.	4 & 6 Lb.	Cones	Beams
55-18	$1.245	$1.315		$1.32	$1.35	$1.35	$1.37	$1.38
75-24	1.18	1.28		1.29	1.32	1.32	1.34	1.35
100-32	1.14			1.23	1.26	1.26	1.28	1.29
150-40	1.03	1.06	1.06	1.07	1.10	1.11	1.11	1.12
200-64	1.00		1.01	1.02	1.04	1.05	1.05	1.06
300-80	.95	.97	.97	.98	1.00	1.01	1.01	1.02

(A) Regular Twist—Add $.02 to Intermediate Twist Price.

Black

Denier & Filament	Zero Twist Tubes	Beams	Low Twist Cones	Beams	Intermediate Twist 2 & 4 Lb. ⅝" Tbs.	4 & 6 Lb. Tw. Tbs.	Cones	Beams
55-18	$1.045	$1.115		$1.12		$1.15	$1.17	$1.18
75-24	.98	1.08		1.09		1.12	1.14	1.15
100-32	.94			1.03		1.06	1.08	1.09
150-40	.83	.86	.86	.87		.91	.91	.92
200-60	.80		.81	.82		.85	.85	.86
300-80	.75	.77	.77	.78	.81	.81	.81	.82
450-120			.75	.76	.79	.79	.79	.80
600-160			.73	.74	.77	.77	.77	.78
900-240			.73	.74	.74	.74	.74	.75

(A) Regular Twist (2.9 and 5 T.P.I.)—add $.02 to Int. Twist Price.

(B) 1 lb. ⅝" Tubes—add $.02 to 2 & 4 lb. ⅝" Tube Price.

Specialty Yarns

Type 20 — Same Price as Regular Yarn

Type C — Same Price as Regular Yarn

Thick & Thin

Denier & Filament	Natural Cones	Beams	Black Cones	Beams	Color-Sealed Cones	Beams
200-64 Int. Twist	1.05		$1.15		$1.35	
200-64 Reg. Twist	1.08	$1.09	1.17	$1.21		

Terms: Net 30 days. Subject to change without notice.

Domestic Freight Terms are F.O.B. shipping point, freight prepaid our route to points east of the Mississippi River within the continental limits of the United States, for points west of the Mississippi River freight allowed to the Mississippi River crossing nearest purchaser's mill if shipped overland, or port of exit of purchaser's choice east of Mississippi River.

Eastman Chemical Products, Inc.

Tennessee Eastman Co.

Effective December 21, 1956

"Estron"* Yarn, Bright or Dull — White

Denier & Filament	Regular Twist Cones	Intermediate Twist Cones	Tubes	Beams	Low Twist Cones	Beams	Zero Twist Tubes	Tricot Beams Spun Twist	Zero Twist
55/13	$1.06	$1.04	$1.02	$1.05	$.98	$.99	$.92½	$.99	$.98½
75/19	1.02	1.00	.98	1.01	.94	.95	.84	.95	....
75/49	1.04	1.02	....	1.03	....	....	....	....	....
100/25	.97	.95	.93	.96	.89	.90	.81	....	....
120/30	.88	.86	.84	.87	.80	.81	....	....	....
150/38	.79	.77	....	.78	.72	.73	.69	....	....
200/50	.75	.73	....	.74	.69	.70	....	....	....
300/75	.71	.69	....	.70	.65	.66	.63	....	....
450/114	.69	.67	....	.68	.63	.64	....	....	....
600/156	.67	.65	....	.66	.62	.63	.63	....	....
900/230	.65	.63	....	.64	....	....	.61	....	....
Heavier	....	....	....	....	....	....	.56	....	....

Current Prices—December 19, 1955

"Chromspun"*—Standard Colors (Except Black)

Denier & Filament	Regular Twist Cones	Beams	Intermediate Twist Cones	Beams	Low Twist Cones	Beams
55/13	$1.39	$1.40	$1.37	$1.38	$1.31	$1.32
75/19	1.36	1.37	1.34	1.35	1.28	1.29
100/25	1.30	1.31	1.28	1.29	1.22	1.23
150/38	....	....	1.11	1.12	1.06	1.07
300/75	....	....	1.01	1.02	.97	.98
450/114	....	....	.99	1.00	.95	.96
900/230	....	....	.94	.95	....	....

Current Prices

News (Continued from Page 75)

New Engraving Firm

Formation of the Apponaug Roto-Graving Co., Apponaug, R.I., formerly the photo engraving department of The Apponaug Finishing Co., has been announced. The new corporation has no affiliation with any printing company, and is engaged in the production of engraving copper rolls or cylinders for printers of textiles, plastics, foils, paper, and the packaging trade. The firm specializes in the photo engraved reproduction of continuous tone and continuous color separation designs. Robert M. Johnson is president and Robert Powers production manager.

Dr. John N. Cosby has been named director of research and development for the Barrett Division of Allied Chemical Corp.

C. Perry Streithof has been appointed director of the Central Engineering Department of American Viscose Corp.

W. L. Boyd

William L. Boyd has joined the testing equipment division of Uster Corp. as a sales engineer.

Clinton W. Dawson has become plant manager of the Franklin Process Yarn Dyeing Division of Indian Head Mills' plant in Philadelphia. He succeeds **M. E. Davis,** deceased. In the same division, **Richard B. Lusignea** has become director of sales.

L. L. Froneberger, Jr.

L. L. Froneberger, Jr. has been appointed vice president of The Bullard Clark Co. In this capacity he will be responsible for the supervision of sales activities in the south for the E. H. Jacobs Southern and Northern Divisions of the Bullard Clark Co.

John C. Cook has been appointed assistant merchandising manager for the Textile Division of Celanese Corp. of America.

Leon Seidel, technical sales representative for Lurex metallic yarn, has been transferred to headquarters of the new consolidated Zefran and Lurex sales group at the Dow Chemical Co.'s Textile Fibers Department in Williamsburg, Va.

C. J. Waitkus has joined E. F. Drew & Co., Inc. as group leader in lubricant research and development.

John P. Chubet has succeeded **Hugh W. Logan** as president of Hightstown Rug Co. Mr. Logan retired as of October 1.

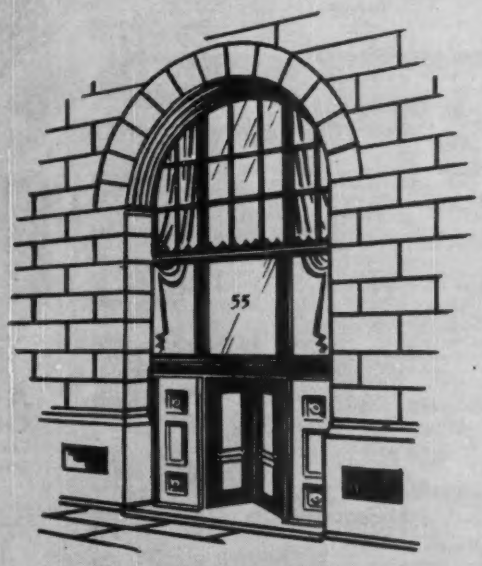
William S. Stolarik has been placed in charge of piece goods sales for Morgan-Jones, Inc., covering the entire West Coast with headquarters in Los Angeles.

Emanuel P. Lewis has been elected president and a member of the board of directors of Shapiro Bros. Factors Corp.

Norfleet M. Gibbs has joined the southern sales staff of Fiber Sales (Continued on Page 83)

Our service is tailored to provide all the working capital any qualified client needs, without increased borrowing, diluting profits or interfering with management.

Information available for any manufacturer or distributor with $500,000 or more annual sales.



Textile Banking Company

55 Madison Avenue, New York 10, N.Y.

Providing operational financing for the apparel, electronics, furniture, leather, plastics and textile industries.

Subsidiaries:

T. B. C. Associates, Inc., New York Southwest Texbanc, Inc., St. Louis

"Chromspun"*—Black

Denier & Filament	Regular Twist Cones	Intermediate Twist Cones	Intermediate Twist Beams	Low Twist & Spun Twist Beams
55/13	$1.19	$1.17	$1.18	$1.12
75/19	1.16	1.14	1.15	1.09
100/25	1.10	1.08	1.09	1.03
150/38	.93	.91	.92	.87
200/50	.87	.85	.86	.82
300/75	.83	.81	.82	.78
450/114	.81	.79	.80	.76
900/230	.76	.74	.75	....

Prices are subject to change without notice.
Prices on special items quoted on request.
Terms: Net 30 days. Payment—U. S. A. dollars.
Transportation charges prepaid or allowed to destination in the United States east of Mississippi River. Seller reserves right to select route and method of shipment. If Buyer requests and Seller agrees to a route or method involving higher than lowest rate Buyer shall pay the excess of transportation cost and tax.
* "Estron" and "Chromspun" are trade-marks of the Eastman Kodak Co.

RAYON STAPLE and TOW

American Viscose Corp.

Current Prices

Rayon Staple

	Bright and Dull
Regular	$ .31
"Viscose 22"	.31
Extra Strength	
1.0 Denier	.34
"Viscose 32A"	.36
"Avisco XL"	
1.0 & 1.5 Deniers	.40
"Avisco Crimped"	
1.25 Denier	.34
3.0 & 5.5 Deniers	.32
8.0 & 15.0 Deniers	.34
"Avisco Super L"	
8.0, 15.0 & 22.0 Deniers	.35
Short Staple Blend	.33

Rayon Tow

Grouped Continuous Filaments (200,000 Total Denier)	
1.5, 3.0 & 5.5 Denier Per Filament	.33
9.0 Denier Per Filament	.35
Grouped Continuous Filaments (4400/300 & 2000/1500)	.65

Prices of other descriptions on request.
Terms: Net 30 days.

American Enka Corp.

Current Prices Effective 1/1/58

Rayon Staple

Regular

	Brt.	Dull
1.5 and 3 denier	$ .31	$ .31
Crimped		
8 denier	.34	....
15 denier	.34	.34

Celanese Corp. of America

Current Prices
Effective Dec. 3, 1957

Rayon Tow

	Bright & Dull
1.5, 3, 5.5 D.P.F. Total denier 200,000	.33
8 D.P.F. Total denier 207,000	.35

Terms: Net 30 days. Transportation prepaid or allowed to any destination in U.S.A. East of Mississippi River. Transportation prepaid to any U.S.A. destination West of Mississippi River, but charge is made for the portion of transportation from river crossing nearest customer's location.
Prices subject to change without notice.
All previous prices withdrawn.
Note: Prices on unlisted items can be obtained upon request.
Orders are subject to conditions of sale appearing on our Acknowledgments of Orders.

Courtaulds (Alabama) Inc.

Effective March 7, 1958

Rayon Staple

	Bright	Dull
1½ and 3 denier	$.31	$.31
Available in 1½", 1-9/16" and 2".		

Crimped Rayon Staple

3 and 5½ denier	$.32	$.32
Available in 1-9/16" and 3".		
3 denier		.32
Available in 2".		

"Coloray" Spun Dyed Rayon Staple

	1½ Den. 1-9/16"	3 Den. 2"	Price per Lb.
	(Code numbers for color and denier)		
Black	1404	1419	37¢
Tan	8004	8019	39¢
Medium Brown	8804	8819	39¢
Silver Grey	1004	1019	39¢
Mocha	7704	7719	39¢
Spicenut	7804	7819	39¢
Dark Brown	8604	8619	40¢
Aqua	4704	4719	40¢
Rose	5804	5819	40¢
Dawn Pink	5904	5919	40¢
Ecru	7904	7919	40¢
Slate Grey	0804	0819	43¢
Light Blue	4004	4019	44¢
Sulphur	2004	2019	44¢
Nugget	2304	2319	44¢
Apple Green	5104	5119	45¢
Sage	5304	5319	45¢
Crystal Blue	3904	3919	45¢
Peacock Blue	4604	4619	46¢
Medium Blue	4204	4219	48¢
Dark Blue	4404	4419	49¢
Hunter Green	5404	5419	49¢
Indian Yellow	2504	2519	49¢
Pink	6004	6019	50¢
Turquoise	4804	4819	50¢
Malachite Green	5204	5219	51¢
Red	7004	7019	56¢

(In addition to the above, Black is also available in:
1½ den. 1⅛" (1401) 3 den. 1-9/16" (1416)
3 den. 1⅛" (1413) 5½ den. 3" (1429)

Corval

Man-made, cross-linked, cellulosic staple, Bright and Dull, 1½, 3 and 5½ denier ..... $.40 per lb.

Topel

Man-made, cross-linked, cellulosic staple, Bright and Dull, 1½, 3 and 5½ denier ..... $.34 per lb.

Terms: Net 30 days f.o.b. LeMoyne, Alabama; Minimum transportation allowed to points in U.S.A. east of Mississippi River.

The Hartford Rayon Co.

Div. Bigelow-Sanford Carpet Co., Inc.

Rayon Staple

Effective January 1, 1958

REGULAR

1.5 denier Bright 1½"	.31
5½ denier Bright 1½", 3" and 4½"	.32
VISCALON 66 (Crimped)	
8 denier 3" Bright	.34
15 denier 3" Bright	.34
15 denier 3" Dull	.34

"KOLORBON"—Solution Dyed Rayon Staple—3" and 6"

	8 Denier Bright	15 Denier Dull	15 Denier Bright
Cloud Grey	45¢	45¢	....
Sandalwood	45¢	45¢	....
Nutria	45¢	45¢	....
Sea Green	45¢	45¢	....
Mint Green	45¢	45¢	....
Champagne	45¢	45¢	....
Cafe Brown	55¢	....	55¢
Midnight Black	45¢	....	45¢
Gold	48¢	48¢	....
Turquoise	45¢	45¢	....
Melon	48¢	48¢	....
Capri Blue	45¢	45¢	....
Charcoal Grey	45¢	45¢	....
Coco	46¢	46¢	....
Sable	47¢	....	47¢
Tangerine	65¢	....	65¢
Chinese Red	65¢	....	65¢
Larkspur Blue	45¢	45¢	....
Royal Blue	65¢	....	65¢
Lemon Peel	54¢	54¢	54¢
Kelly Green	54¢	54¢	54¢
Bitter Green	65¢	....	65¢

Terms: Net 30 days. Prices are quoted f.o.b. shipping point, lowest cost of transportation allowed, or prepaid. To points West of the Mississippi, lowest cost of transportation allowed to the Mississippi River crossing.

North American Rayon Corporation

Current Prices

Rayon Staple

Super High Tenacity	Bright
No. 1 (Unshrunk)	
1, 1.5 & 3 deniers	.40
No. 2 (Preshrunk)	
1, 1.5 & 3 deniers	.40

Rayon Tow

Super High Tenacity	
2200 denier, 1.0 and 1.5 D/F	57.5
4400 denier, 1.0 and 1.5 D/F	47.5

ACETATE STAPLE and TOW

Celanese Corp. of America

Current Prices
Effective March 17, 1958
(Most Deniers Available in Bright or Dull Luster)

Staple

Celanese Acetate Staple	
2, 3, 5.5, 8, 12 & 17 Denier (Regular Crimp, Type HC, Type D)	$.36
35 Denier	.38
50 Denier	.40
Type F—5.5, 8, 12, 17 Denier	.35
Type K—(Available under Celanese License Agreement)	.39
⅝" to ⅞" length (All Deniers)	.03 (Premium)
35 Denier Flat Filament Acetate	.40
Non-Textile Acetate Fibers	.28*

Tow (Celatow)

2, 3, 5.5, 8, 12 & 17 Denier	$.37
35 Denier	.40
50 Denier	.42

Terms: Net 30 days. Transportation prepaid or allowed to any destination in U.S.A. east of Mississippi River. Transportation prepaid to any U.S.A. destination west of Mississippi River, but charge is made for the portion of transportation from river crossing nearest customer's location.
Prices subject to change without notice.
All previous prices withdrawn.
* No transportation allowed (F.O.B. shipping point.)
Note: Prices on unlisted items can be obtained upon request.

Outlook

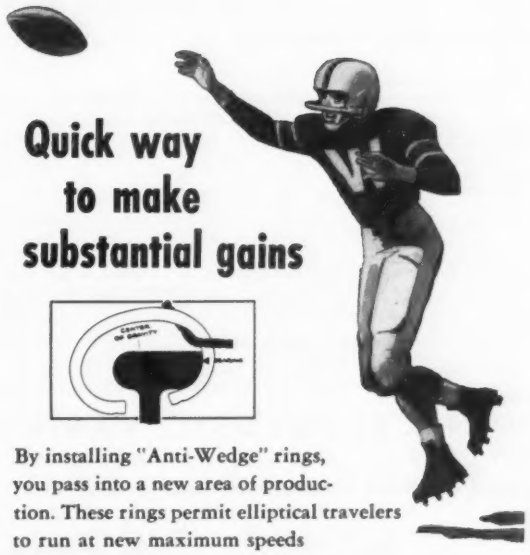
(Continued from Page 30)

Use of long-staple man-made fibers, he says, also facilitates advantageous blending with natural fibers. He recommends thorough blending by means of suitable equipment in advance of the spinning operation.

Modern, efficient yarn preparation and spinning along the lines he advocates, Giraudi believes, will enable American mills to produce worsted blends that will compete pricewise with goods coming in from Europe and Japan.

There is no need for American mills to lose the worsted market, he says. In fact, he is convinced that updated manufacturing methods will enable American cloth makers to expand greatly sales of these fabrics.

With few outstanding exceptions, he thinks, American mills are not equipped to make the most of the profit potential in spinning long staple yarns of blended man-made and natural fibers. In his present work with Roberts he will be available to cooperate with Roberts customers on the setting up of complete systems of manufacture for long staple yarns especially intended for use in weaving worsted and worsted-like fabrics.



Quick way to make substantial gains

By installing "Anti-Wedge" rings, you pass into a new area of production. These rings permit elliptical travelers to run at new maximum speeds without excessive fly or wedging of yarn. A DIAMOND FINISH exclusive.

WHITINSVILLE (MASS.) SPINNING RING CO.

DIAMOND FINISH

Makers of Spinning and Twister Rings since 1873

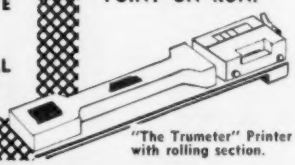
Rep. for the Carolinas & Va.: W. K. SHIRLEY, P.O. Box 406, Belmont, N. C.

TRUMETER

STANDARD MODEL YARDAGE PRINTER

ILLUSTRATED IS THE "BUSINESS END" OF A FAMOUS MACHINE —PROVED AND TRUSTED BY THE TEXTILE TRADE ALL OVER THE WORLD

PRINTED VOUCHER DELIVERED AT ANY POINT ON RUN.



"The Trumeter" Printer with rolling section.

Write for details

TRUMETER CO.

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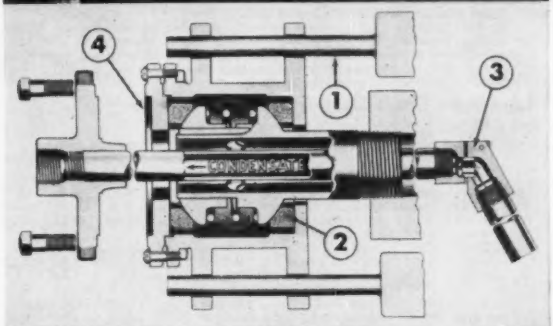
IN CANADA W. J. WESTAWAY CO. LTD.
Montreal • Toronto • Hamilton

For service on Dry Cans and 30" Slasher Cylinders



Type LJSP with Syphon Elbow

Johnson ROTARY PRESSURE **Joints** *First* in the Textile Industry

1. Support rods carry all the real weight. Sealing assembly "floats" freely inside. **2.** Seals without packing—needs no lubrication or adjusting. **3.** Syphon elbow replaces clumsy curved syphon pipe with two straight pipes, passes right through joint. **4.** Assembly plate holds parts in place when head is removed.

Write for Catalog J-2002

Shows Johnson Joints for all needs, on dry cans, print cans, calenders, compressive shrinkage ranges, 5' and 7' cotton slashers, etc.

THE JOHNSON CORPORATION

814 Wood St., Three Rivers, Mich.

Orders are subject to conditions of sale appearing on our acknowledgments of orders.

Celanese Corp. of America

Current Prices

Effective March 17, 1958

(Most Deniers Available in Bright or Dull Luster)

Arnel Triacetate Staple and Tow

Arnel Triacetate Staple	Bright & Dull
2.5 Individual Denier	$.55
5.0 Individual Denier	.55
Arnel Triacetate Tow	
2.5 Individual Denier 114,000 Total Denier	$.60
5.0 Individual Denier 90,000 Total Denier or 180,000 Total Denier	.60

Packaged on Ball Warps

Terms: Net 30 days. Transportation prepaid or allowed to any destination in U.S.A. east of Mississippi River. Transportation prepaid to any U.S.A. destination west of Mississippi River, but charge is made for the portion of transportation from river crossing nearest customer's location.

Prices subject to change without notice.

All previous prices withdrawn.

Note: Prices on unlisted items can be obtained upon request.

Orders are subject to conditions of sale appearing on our acknowledgments of orders.

NON CELLULOSIC YARN

NYLON

Allied Chemical Corporation

Caprolan®†

Effective May 20, 1958

Denier	Filament	Turn/In.	Twist	Type**	Package	1st Grade Price/Lb.
200	16	1½	Z	B	Cone	$1.49
560	32	1	Z	HB	Aluminum Tube	$1.39
840	136	½	Z	HBT	Aluminum Tube	1.20
840	136	½	Z	HBT	Beams	1.20
Heavy Yarn						
2100	408	0	O	HB	Paper Tube*	$1.18
2100	112	0	O	HB	Paper Tube*	1.20
2500	408	0	O	HB	Paper Tube*	1.18
3360	544	0	O	HB	Paper Tube*	1.17
4200	680	0	O	HB	Paper Tube*	1.17
4200	224	0	O	HB	Paper Tube*	1.19
5000	816	0	O	HB	Paper Tube*	1.17
5000	280	0	O	HB	Paper Tube*	1.19
5800	952	0	O	HB	Paper Tube*	1.17
7500	1224	0	O	HB	Paper Tube*	1.16
10000	1632	0	O	HB	Paper Tube*	1.16
15000	2448	0	O	HB	Paper Tube*	1.16

Terms—Net 30 days.

Prices subject to change without notice.

All prices quoted F.O.B. Shipping Point.

Following are invoiced as a separate item.

Bobbins—45 cents each.

Aluminum Tubes—40 cents each.

Beams—$220.00 each.

Cradles for Beams—$53.00.

B—Bright.
H—High Tenacity.
T—Heat Stabilized.

* Paper Tubes non-returnable, no charge.

** Type is used to describe luster and tenacity

Lowest freight cost prepaid or allowed east of Mississippi River, for points west of the Mississippi River freight allowed to the Mississippi River crossing nearest purchaser's mill if shipped overland, or port of exit of purchaser's choice east of Mississippi River.

† Allied Chemical's polyamide fiber.

American Enka Corporation

Enka Nylon Yarn Prices

Effective August 19, 1958

Den/Fil	Twist	Luster	Type	Tenacity	Pkg.	Net Wt. Pkg.	Price/Pound Std.	Sub.
15 monofil	0.5Z	Semi-dull	9504	Normal	Pirn	1 lb.	$5.25	$5.00
15 monofil	0.5Z	Semi-dull	9506	Normal	Pirn	2 lb.	5.25	5.00
15 monofil	0.5Z	Semi-dull	9508	Normal	Beam	....	5.36	....
15 monofil	0.5Z	Dull	9512	Normal	Pirn	1 lb.	5.30	5.05
15 monofil	0.5Z	Dull	9514	Normal	Pirn	2 lb.	5.30	5.05
15 monofil	0.5Z	Dull	9516	Normal	Beam	....	5.41	....
15/2	0.5Z	Semi-dull	9518	Normal	Pirn	1 lb.	7.37	6.70
18/2	0.5Z	Semi-dull	....	Normal	Pirn	....	6.65	6.10
20 monofil	0.5Z	Semi-dull	9524	Normal	Pirn	1 lb.	4.95	4.50
20/2	0.5Z	Semi-dull	9478	Normal	Pirn	1 lb.	5.55	5.05
30/4	0.5Z	Semi-dull	....	Normal	Pirn	....	2.62	2.42
30/6	0.5Z	Semi-dull	9466	Normal	Pirn	2 lb.	2.36	2.21
30/6	0.5Z	Semi-dull	9464	Normal	Pirn	2 lb.	2.36	2.21
40/8	0.5Z	Semi-dull	9448	Normal	Pirn	2 lb.	2.01	1.91
40/8	0.5Z	Semi-dull	9452	Normal	Pirn	2 lb.	2.01	1.91
40/8	0.5Z	Semi-dull	9456	Normal	Beam	....	2.11	....
40/10	0.5Z	Dull	9502	Normal	Pirn	2 lb.	2.06	1.96
40/10	0.5Z	Dull	9526	Normal	Beam	....	2.16	....
50/13	0.5Z	Semi-dull	9442	Normal	Pirn	2 lb.	1.91	1.76
70/32	0.5Z	Semi-dull	9622	Normal	Pirn	2 lb.	1.71	1.66
100/32	0.5Z	Semi-dull	9652	Normal	Pirn	2 lb.	1.65	1.60
200/16	0.6Z	Bright	9826	Normal	Cone	4 lb.	1.49	1.44
200/16	0.5Z	Bright	9828	Normal	Beam	....	1.54	....
200/34	0.6Z	Bright	9832	Normal	Cone	4 lb.	1.49	1.44
200/34	0.5Z	Bright	9824	Normal	Beam	....	1.54	....

Pirns charged at $.25 or $.45 each, depending on type. Deposit refunded upon return of pirn in good condition. Cones are non-returnable. Beams and cradles are deposit carriers and remain property of American Enka Corporation.

Terms: Net 30 days. Minimum common carrier transportation charges will be pre-paid and absorbed to the first destination on or east of the Mississippi River. In pre-paying transportation charges, seller reserves the right to select the carrier used.

The Chemstrand Corp.

Current Prices

Effective June 2, 1958

Denier	Filament	Twist	Type*	Package	Standard Price/Lb.	Second Price/Lb.
10	1	O	SD	Bobbins	$8.42	$7.81
15	1	O	SD	Bobbins	5.25	5.00
15	1	O	SD	Spools	5.36	....
15	1	O	D	Bobbins	5.30	5.00
15	1	O	D	Spools	5.41	....
20	7	Z	D	Bobbins	2.96	2.61
30	10	Z	SD	Bobbins	2.36	2.21
30	10	Z	D	Bobbins	2.41	2.21
30	10	Z	HSD	Bobbins	2.36	2.21
30	26	Z	SD	Bobbins	2.49	2.21
40	7	Z	SD	Bobbins	2.11	1.81
40	10	Z	SD	Bobbins	2.01	1.91
40	13	Z	SD	Bobbins	2.01	1.91
40	13	O	SD	Draw Wind	2.01	1.91
40	13	Z	SD	Spools	2.11	....
40	13	Z	D	Bobbins	2.06	1.96
40	13	Z	D	Spools	2.16	....
50	17	Z	SD	Bobbins	1.91	1.76
50	17	Z	SD	Draw Wind	1.91	1.76
70	34	Z	SD	Bobbins	1.71	1.66
70	34	O	SD	Draw Wind	1.71	1.66
70	34	Z	SD	Spools	1.81	....
70	34	Z	B	Bobbins	1.71	1.66
70	34	O	B	Draw Wind	1.71	1.66
70	34	Z	D	Bobbins	1.76	1.66
70	34	Z	D	Spools	1.86	....
70	34	Z	HB	Bobbins	1.76	1.66
80	26	Z	SD	Bobbins	1.71	1.60
100	34	Z	SD	Bobbins	1.65	1.60
100	34	Z	SD	Spools	1.75	....
100	34	Z	HB	Bobbins	1.70	1.60
140	68	Z	SD	Bobbins	1.60	1.55
140	68	Z	SD	Spools	1.70	....
140	68	Z	B	Bobbins	1.60	1.55
200	34	Z	B	Bobbins	1.49	1.44
200	34	O	B	Draw Wind	1.49	1.44
210	34	Z	HB	Bobbins	1.49	1.44
210	34	O	HB	Draw Wind	1.49	1.44
210	34	Z	HB	Spools	1.54	....
210	34	Z	HB	Beams	1.54	....
210	34	Z	RHB	Bobbins	1.59	1.54
280	17	Z	HB	Bobbins	1.49	1.39
280	17	Z	HB	Spools	1.54	....
420	68	Z	HB	Bobbins	1.39	1.29
520	34	Z	HB	Bobbins	1.39	1.29
630	102	Z	HB	Bobbins	1.39	1.29
780	51	Z	HB	Bobbins	1.39	1.29
840	140	Z	HB	Beams	1.20	1.10
840	140	Z	HB	Tubes	1.20	1.15
840	140	O	HB	Draw Wind	1.20	1.13
840	140	Z	RHB	Beams	1.20	1.13
840	140	Z	RHB	Tubes	1.20	1.13
1040	68	Z	SD	Tubes	1.24	1.14
1040	68	Z	HB	Tubes	1.24	1.14
1680	280	Z	HB	Tubes	1.20	....
2080	136	Z	SD	Tubes	1.20	....
15120	2520	Z	RHB	Tubes	1.16	....

* *Types:* D—Dull; SD—Semi-dull; B—Bright; H—High tenacity.

Bobbins are invoiced at 25¢ or 45¢ each, depending on type; tubes are invoiced at 40¢ each; spools invoiced at $77.00 and $95.00 depending on type; and beams and crates for beams are invoiced at $220 and $25 respectively.

Prices subject to change without notice.

E. I. du Pont de Nemours & Co.

Textile Fibers Dept.

Current Prices

Nylon Yarn

Denier & Filament	Turns/Inch & Twist	Type	Package	1st Grade	2nd Grade
7-1	0	200	Bobbin	$9.47	$8.82
10-1	0	200	Bobbin	8.42	7.82
12-1	0	200	Bobbin	7.35	6.85
15-1	0	200	Beam	5.36	....
15-1	0	200	Bobbin	5.25	5.00
15-1	0	680	Beam	5.41	....
15-1	0	680	Bobbin	5.30	5.00
20-1	0	200	Bobbin	4.95	4.50
14-2	0.2Z	200	Bobbin	7.90	7.30
17-2	0.2Z	200	Bobbin	7.05	6.50
20-2	0.2Z	200	Bobbin	5.55	5.05
15-3	0.2Z	200	Bobbin	6.10	5.60
21-3	0.2Z	200	Bobbin	5.48	5.05
20-7	0.5Z	200	Bobbin	2.91	2.61
20-7	0.5Z	200	Beam	3.02	....
20-7	0.5Z	680	Bobbin	2.96	2.61
20-7	0.5Z	680	Beam	3.07	....
20-20	0.7Z	209	Bobbin	6.00	....
28-4	0.2Z	200	Bobbin	2.81	2.61
30-10	0.5Z	200	Bobbin	2.36	2.21
30-10	0.5Z	200	Tricot Bms.	2.46	....
30-10	0.5Z	680	Bobbin	2.41	2.21
30-10	0.5Z	680	Tricot Bms.	2.51	....
30-26	0.5Z	200	Bobbin	2.49	2.21
40-1	0	100	Bobbin	4.03	3.75
40-7	0.5Z	200	Bobbin	2.11	1.91
40-13	0.5Z	200	Bobbin	2.01	1.91
40-13	0.5Z	200	Tricot Bms.	2.11	....
40-13	0.5Z	400	Bobbin	2.13	1.90
40-13	0.5Z	680	Bobbin	2.06	1.96
40-13	0.5Z	680	Tricot Bms.	2.16	....
40-34	0.5Z	200	Bobbin	2.21	1.81
50-10	0.5Z	200	Bobbins	2.11	1.76
50-17	0.5Z	200	Bobbin	1.91	1.76
50-17	0	200	Tubes	1.91	1.76
50-17	0.5Z	680	Bobbin	2.01	1.76
60-20	0.5Z	200	Bobbin	1.82	1.65
70-17	0.5Z	200	Bobbin	1.71	1.66
70-34	0	100	Tubes	1.71	1.66
70-34	0.5Z	100/200	Bobbin	1.71	1.66
70-34	0	200	Tubes	1.71	1.66
70-34	0.5Z	280	Bobbin	1.71	1.66
70-34	0.5Z	300	Bobbin	1.76	1.66
70-34	0.5Z	680	Bobbin	1.76	1.66
70-34	0	680	Tubes	1.76	1.66

News (Cont. from Page 79)

and Service, National Aniline Division, Allied Chemical Corp. His headquarters are in Greensboro, N. C.

Klaus W. Bahlo has joined American Fabrics Co. as chief industrial engineer.

C. A. McLendon

Charles A. McLendon has been elected a vice president of Burlington Industries.

Frederick H. Gilchrest has been appointed technical assistant to the director of product development at the Solvay Process Division of Allied Chemical Corp. and **Dr. J. Ross Tuttle** vice president of the company's International Division.

H. C. Borghetty

Hector C. Borghetty has been appointed general manager of foreign operations for General Aniline & Film Corp. and **Gerard E. Neisser** has been named Latin American regional manager for the company's foreign operations. Mr. Neisser retains his present position as export-import manager of dyestuffs.

At the Solvay Research Department in Syracuse the following posts have been assigned: **Dr. Robert H. Reed,** director of research; **Dr. Herbert C. Wholers,** assistant director; and **Dr. Arlie P. Julien,** chief of application research.

W. W. Boring and **H. H. Scheviak** have joined the Greensboro office of American Enka Corp. as sales and technical representatives respectively, and these same respective posts have been assigned to **Donald Hoffman** and **Douglas Smith** in New York. At the company's Chattanooga office **Robert Graham** has become a sales representative.

M. Bernard Morgan has been promoted to the post of chief engineer of the Fibers Division at American Viscose Corp.

Merrill Little has become director of greige goods quality control, at Amerotron Corp, succeeding the late **Joseph F. Merten.**

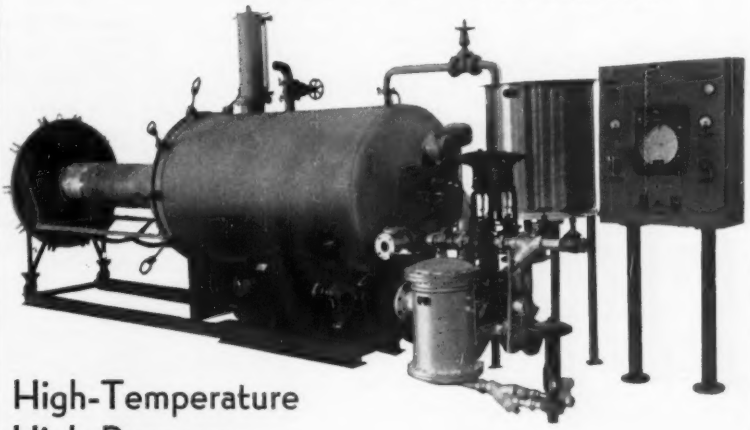
W. T. Horton has joined Carter Traveler Co. as sales engineer, succeeding **W. Lamar Rankin** who has retired. Mr. Horton was formerly associated with Victor Ring Traveler Co.

Henry F. Tindel has been appointed assistant director of new product merchandising for Celanese Corp. of America's Textile Division.

Ernest H. Hart has joined the chemical specialties department of Ciba Co., Inc.

David Walser has been named sales manager of the Stead & Miller Division of Collins & Aikman. He formerly held the same position with Duplan Corp.

NEW GASTON COUNTY FABRIC DYEING MACHINE



High-Temperature High-Pressure

This machine is designed to dye open-width woven fabrics made of synthetic fibers and blends of natural and synthetic fibers that require high temperature-high pressure procedures for good dyeing results. Certain synthetic fabrics are HEAT SET during dyeing thus eliminating an additional process for this purpose.
Machine can be supplied with one-way or two-way flow according to customer specifications.
Machine capacity is for cloth up to 120" wide and up to 2,500 yards in length.

OUTSTANDING *NEW* FEATURES

AUTOMATIC HEATING AND COOLING—The exchanger is equipped with automatic steam and water valves so that the temperature controller maintains temperature setting at all times.
STATIC PRESSURE CHAMBER—Compressed air is injected into dyeing vessel to provide a static pressure cushion which allows the dye pump to maintain a constant flow.
RUNNING WASH SYSTEM—Clean water is fed to the dye pump from the expansion tank through large pipe line. The wash water is forced thru the dye beam and exhausted to drain sewer.
COMPLETELY AUTOMATIC FLOW CONTROL—Desired dyeing pressure is pre-set on control panel, pump is started and pressure is then maintained at set point throughout the entire dyeing cycle. Flow control valve is always closed when dye pump is not running and it is also closed during reversal periods. The valve closes slowly before the flow is reversed from 'outside-in' to 'inside-out' or vice versa, by the 4-way reversing valve. After the flow is reversed the flow control valve opens slowly. This eliminates surges which disturb the position of the cloth on the dye beam.
AUTOMATIC BEAM REVOLVING DEVICE—The dye beam is revolved by a constant speed driving mechanism and this assures even penetration during the scouring and dyeing cycles. This feature minimizes shading and produces level dyeing from end to end of the dye beam.

GASTON COUNTY DYEING MACHINE CO.

Pioneers In Automatically — *Controlling Dyeing Machinery*

STANLEY, N. C.

Gaston County Dyeing Machine Co. Terminal Bldg., 68 Hudson St. Hoboken, N. J., G. Lindner, Mgr. J. R. Angel

A. R. Breen 80 E. Jackson Blvd. Chicago, Ill.

Albert P. March Whitemarsh, Pa. Phila. Adams 3-2901 1104 Mortgage Guarantee Bldg.

The Rudel Machinery Co., Ltd. 614 St. James St. W., Montreal 260 Fleet St. E., Toronto Atlanta, Ga.

80-26	0.5Z	200	Bobbin	1.71	1.56
90-26	0.5Z	200	Bobbin	1.76	1.66
90-44	0.5Z	200	Bobbin	1.86	1.76
100-34	0.5Z	200	Bobbin	1.65	1.60
100-34	0.5Z	300	Bobbin	1.70	1.60
100-34	0	300	Tubes	1.70	1.60
100-34	0.5Z	680	Bobbin	1.70	1.60
100-50	0.5Z	200	Bobbin	1.71	1.60
140-68	0.5Z	100	Bobbin	1.60	1.55
140-68	0	200	Tubes	1.60	1.55
140-68	0.5Z	200	Bobbin	1.60	1.55
140-68	0.5Z	300	Bobbin	1.65	1.55
200-20	1Z	100	Bobbin	1.49	1.44
200-34	0	100	Tubes	1.49	1.44
200-34	0.7Z	100	Bobbin	1.49	1.44
200-34	0.7Z	680	Bobbin	1.54	1.44
200-68	0.7Z	200	Bobbin	1.56	1.46
210-34	0	300	Tubes	1.49	1.44
210-34	0.7Z	300	Bobbin	1.49	1.44
210-34	0.7Z	300	Beam	1.54	....
210-34	0.7Z	330	Bobbin	1.59	1.44
260-17	1Z	300	Bobbin	1.49	1.39
400-68	0.7Z	100	Bobbin	1.39	1.29
420-68	1Z	300	Bobbin	1.39	1.29
520-34	1Z	300	Bobbin	1.39	1.29
780-51	1Z	300	Bobbin	1.39	1.29
800-140	0.5Z	100	Bobbin	1.39	1.29
840-140	0.5Z	300/700	Al. Tbs	1.20	1.13
840-140	0.5Z	300/700	Beam	1.20	....
1680-280	0.5Z	300/700	Al. Tbs	1.20	1.13
1680-280	0.5Z	300/700	Beam	1.20	....

Color-Sealed Yarn

Denier & Filament	Turns/Inch & Twist	Type	Package	1st Grade	2nd Grade
30-10	0.5Z	140	Bobbin	$2.71	$2.56
40-13	0.5Z	140	Bobbin	2.36	2.16
70-34	0.5Z	140	Bobbin	2.06	2.01
100-34	0.5Z	140	Bobbin	2.00	1.95
100-34	0	140	Tubes	2.00	1.95
200-34	0.7Z	140	Bobbin	1.84	1.79
260-17	1Z	140	Bobbin	1.84	1.79

Industrial Yarn				Price/Lb.
2520-420	0	300/700	Paper Tube	$1.18
4200-700	0	300/700	Paper Tube	1.17
5040-840	0	300/700	Paper Tube	1.17
7560-1260	0	300/700	Paper Tube	1.16
10080-1680	0	300/700	Paper Tube	1.16
15120-2520	0	300/700	Paper Tube	1.16

These prices are subject to change without notice. Terms: Net 30 Days.

Types

Type 100—Bright, normal tenacity.
Type 140—Bright, color-sealed, black, normal tenacity.
Type 200—Semidull, normal tenacity.
Type 209—Semidull, normal tenacity, improved light durability and dye light fastness.
Type 300—Bright, high tenacity.
Type 330—Bright, high tenacity, more heat & light resistant.
Type 400—Semidull, high tenacity.
Type 680—Dull, normal tenacity.
Type 700—Bright, high tenacity.

Freight Terms—Terms are F.O.B. shipping point, freight prepaid our route to points east of the Mississippi River within the continental limits of the United States, for points west of the Mississippi River freight allowed to the Mississippi River crossing nearest purchaser's mill if shipped overland, or port of exit of purchaser's choice east of Mississippi River.

Following are invoiced as a separate item.
Bobbins—25 cents or 45 cents depending on type
Aluminum Tube—40¢ each
Draw Winder Tubes—$.70 or $1.00 depending on type
Tire Cord Beams—$220.00 each
Cradles for Tire Cord Beams—$115.00 each
Tricot Beams—$95.00 each
Cradles for Tricot Beams—$130.00 each
(Beams and Cradles are deposit carriers and remain the property of E. I. du Pont de Nemours & Co., Inc.)

POLYESTER

E. I. du Pont de Nemours & Co.

Textile Fibers Dept.

Current Prices

"Dacron"*

Denier & Filament	Turns/Inch	Luster	Type*	Tubes 1st Gr.
30-14	0	Bright	55	$2.81
30-20	0	Semidull	56	2.81
40-27	0	Semidull	56	2.41
40-27	0	Bright	55	2.41
40-27	0	Dull	57	2.46
70-34	0	Semidull	56	2.01
70-14	0	Bright	55	2.01
70-34	0	Bright	55	2.01
70-34	0	Dull	57	2.06
100-34	0	Semidull	56	1.94
140-27	0	Bright	55	1.89
150-34	0	Semidull	56	1.91
220-50	0	Bright	51	1.84
250-50	0	Bright	55	1.86
1100-250	0	Semidull	59	1.50
1100-250	0	Bright	51	1.50
1100-250	0	Bright	52	1.50

Terms: Net 30 Days

Domestic Freight Terms are F.O.B. shipping point, freight prepaid our route to points east of the Mississippi River within the continental limits of the United States, for points west of the Mississippi River freight allowed to the Mississippi River crossing nearest purchaser's mill if shipped overland, or port of exit of purchaser's choice east of Mississippi River.

Yarn Types

* Type:
Type 51—Bright, high tenacity.
Type 52—Bright, high tenacity.
Type 55—Bright, normal tenacity.
Type 56—Semidull, normal tenacity.
Type 57—Dull, normal tenacity.
Type 59—Semidull, high tenacity.

Tubes are invoiced as a separate item at $.70 each.

* "DACRON" is DuPont's registered trade-mark for its polyester fiber.

Eastman Chemical Products, Inc.

Tennessee Eastman Co.

Effective September 15, 1958

"Kodel"*

1½ denier	$1.60
3 and 4½ denier	1.50

Terms: Net 30 days.

SARAN FIBERS

The Saran Yarns Company — Odenton, Maryland

The Hall Company (Selling Agent)

41 East 42 Street, New York 17, N. Y. (Oxford 7-8996)

Current Prices:

CONTINUOUS FILAMENT

Type	Twist p. i.	Natural	Colors
1240/10	3	$1.32	$1.37
750/20*	3	1.75	1.80

* For filter fabrics and other industrial purposes only.

F.O.B. Odenton, Maryland.

Terms: Net 30 days.

NON CELLULOSIC STAPLE & TOW

ACRYLIC

The Chemstrand Corp.

Current Prices

"Acrilan"*

Effective October 1, 1957

	Regular Acrilan	Acrilan 16
2.0 denier Semi-Dul and Bright staple & tow	$1.24	$1.24
2.5 denier Hi-Bulk Bright and Semi-dull staple and tow	1.16	1.16
3.0 denier Bright & Semi-dull staple & tow	1.16	1.16
5.0 denier Bright & Semi-dull staple & tow	1.16	1.16
8.0 denier Bright & Semi-dull staple	1.16	1.16
15.0 denier Bright & Semi-dull staple	1.01	1.05

Terms: Net 30 days. Freight prepaid to points east of the Mississippi River

* "Acrilan" is Chemstrand's registered trademark for its acrylic fiber.

The Dow Chemical Company

Textile Fibers Department

Current Prices

"Zefran"*

2.0 denier Semidull & Bright—Staple only	$1.33
3.0 denier Semidull & Bright—Staple only	1.28
6.0 denier Semidull & Bright—Staple only	1.20

Terms: Net 30 days.

Transportation Terms: F.O.B. shipping point—Freight prepaid our route to points east of the Mississippi River within the continental limits of the U. S., for points west of the Mississippi River crossing nearest purchaser's mill if shipped overland or port of exit of purchaser's choice east of the Mississippi River.

* "Zefran" is Dow's registered trademark for its acrylic alloy fiber.

E. I. du Pont de Nemours & Co.

Textile Fibers Dept.

Current Prices

"Orlon"** Acrylic Staple & Tow

Type 42	1st Grade
1.0 Denier Semidull & Bright—Staple only	$1.48
2.0 Denier Semidull & Bright	1.33
3.0 Denier Semidull & Bright	1.28
3.0 Denier Semidull Color-sealed Black	1.63
6.0 Denier Semidull & Bright	1.20
6.0 Denier Color-sealed Black	1.55
4.5 Denier Semidull	1.20
10.0 Denier Semidull	1.20

Tow—Total Denier 470,000
Staple Lengths—1½", 2", 2½", 3", 4½"
High Shrinkage Staple same price as Regular Staple

Type 39 $1.06

This product is designed for *woolen system spinning* and is a blend of deniers (average 4.2) with a variable cut length.

Type 39A $1.14

This product is designed for *woolen system spinning* and is a blend of predominately fine deniers (average 2.4) with a variable cut length.

Type 39B $1.01

This product is designed for *woolen system spinning* and is a blend of predominately heavy deniers (average 6.5) with a variable cut length.

F.O.B. Shipping Point—Freight prepaid our route to points east of the Mississippi River within the continental limits of the United States, for points west of the Mississippi River freight allowed to the Mississippi River crossing nearest purchaser's mill if shipped overland, or port of exit of purchaser's choice east of Mississippi River.

Terms: Net 30 Days.

** "ORLON" is DuPont's registered trade-mark for its acrylic fiber.

Eastman Chemical Products, Inc.

Tennessee Eastman Co.

Effective November 15, 1956

"Verel"*

Deniers	Dull and Bright
2, 3, 5 and 8	$1.10 per pound

...with the Lindly Automatic Photo-Scanner

Set the amazing Photo-Scanner to detect your smallest allowable defect. Automatically, it does the rest...continuously scanning the tricot—as it's knitted—automatically stops the machine for larger faults.

You get top quality in finished goods—quality you determine—a measure of quality recognized throughout the industry.

Find out how the Lindly Automatic PHOTO-SCANNER can save you time and money. Write or call today.

Other Outstanding Lindly Automatics
Automatic Yarn Inspectors
Automatic End Break Detectors
Automatic Yarn Defect Analyzer

It Pays to Know the Lindly Count

LINDLY

LINDLY & COMPANY, INC.
248 HERRICKS ROAD
MINEOLA, NEW YORK

Hans F. Koehler has been appointed territorial sales engineer for Fidelity Machine Co.

E. Connell and **E. Ingle** have been appointed to cover the southern and central sales area for Franklin Process Co., Division of Indian Head Mills, Inc.

B. F. Benson

B. F. Benson has been appointed market development manager of Industrial Rayon Corp.'s industrial products division and **Ralph J. Manica** has been named head of the tire cord evaluation laboratory.

Martin H. Gurley, Jr. has been appointed to the newly-created position of new product analyst of the Vulcan Rubber Products Division of Reeves Brothers, Inc.

Harry H. Pact has become New England sales representative for Standard Chemical Products, Inc., succeeding **Arthur E. Hirst,** retired.

W. H. Brown

William H. Brown has been named manager of the newly-formed marketing department of National Vulcanized Fibre Co.

David G. Foulk has been appointed vice president of William Iselin & Co., Inc.

W. R. Reid, Jr. has been elected a vice president of The Torrington Co.

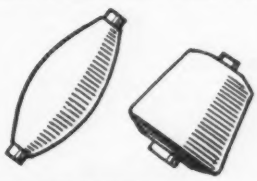
Deaths

Lewis W. Thomason, Jr., southern district manager for New York & New Jersey Lubricant Co. He was 47 years old.

Thomas Leo Cotter, assistant sales manager, Universal Winding Co. Mr. Cotter had been due to retire next March after 47 years with Universal.

DYERS
and
THROWSTERS
OVER 35 YEARS
EXPERIENCE

HOFFNER
RAYON CO.
THE COMPLETE PACKAGE



THROWING
DYEING
PACKAGING

GENERAL OFFICES
General Offices at Belgrade and Ontario Streets, Philadelphia 34, Pennsylvania. Plants at Philadelphia and Quakertown, Pennsylvania.

SALES REPRESENTATIVES
Shannonhouse & Wetzell
Johnston Bldg. Charlotte, N. C.
The Tillinghast-Stiles Co.
Providence, R. I. Chicago, Ill.
R. C. Osborne & Co.
Broad St. & Allegheny Ave.
Phila. 32, Pa.
Carl L. Miller
808 First Nat'l Bank Bldg., Utica, N. Y.

Prices are subject to change without notice.
Terms: Net 30 days. Payment—U. S. A. dollars.
Transportation charges prepaid or allowed to destination in the United States east of the Mississippi River. Seller reserves the right to select route and method of shipment. If buyer requests and seller agrees to a route or method involving higher than lowest rate buyer shall pay the excess of transportation cost and tax.
• "Verel" is a trade-mark of the Eastman Kodak Co.

Union Carbide Chemicals Co.

Div. Union Carbide Corp.
Textile Fibers Dept.
Effective October 1, 1957

Dynel Staple & Tow

Natural Dynel	
3, 6, and 12 Denier, Staple and Tow	1.10 per lb.
24 Denier, Staple and Tow	1.05 per lb.
Dynel Spun with Light Colors:	
Whitened, Blond, or Gray	
3 and 6 Denier, Staple and Tow	1.30 per lb.
Dynel Spun with Dark Colors:	
Black, Charcoal, and Brown	
3 and 6 Denier, Staple and Tow	1.40 per lb.
Dynel Type 63 Bulking Fiber (3 Denier only)	Add $.05 per lb. to above prices

Prices are quoted f.o.b. South Charleston, W. Va.

NYLON

American Enka Corp.

Effective August 19, 1958

Enka Nylon (Nylon Six Staple)

Denier	Luster	Length (Inches)	Price per pound
3	semi-dull	1½, 1½, 2, 2½, 3, 4½	$1.28
6	bright	3, 4½	1.28
8	bright	2½	1.15
10	bright	3	1.08
15	bright	3	1.08
15	semi-dull	3	1.08

Deniers and lengths of staple not listed above are available upon special request.
Terms: Net 30 days. Minimum common carrier transportation charges will be prepaid and absorbed to the first destination on or east of the Mississippi River. In prepaying transportation charges, seller reserves the right to select the carrier used.

E. I. du Pont de Nemours & Co.

Textile Fibers Dept.
Current Prices

Nylon Staple and Tow

Denier	Type	Staple Lengths	Tow Bundle	1st. Grade Price/Lb.	2nd Grade Staple Only
1.5	200	1½"—4½"	None made	$1.33	$1.18
1.5	201	1½"—4½"	None made	1.35	1.20
3.0	100/200	1½"—4½"	430M	1.28	1.13
3.0	101/201	1½"—4½"	455M	1.30	1.15
6.0	100	1½"—4½"	330M	1.28	1.13
6.0	101	1½"—4½"	345M	1.30	1.15
15.0	100	1½"—6½"	425M	1.08	....
15.0	101	1½"—6½"	None made	1.10	....
15.0	600	1½"—6½"	425M	1.10	....
15.0	601	1½"—6½"	None made	1.12	....

Staple lengths are restricted to the range shown opposite each denier above. The actual cut lengths within these ranges are as follows:

1½, 1½, 2, 2½, 3, 4½ and 6½

Types

Type 100 Bright, normal tenacity, not heatset.
Type 101 Bright, normal tenacity, heatset.
Type 200 Semidull, normal tenacity, not heatset.
Type 201 Semidull, normal tenacity, heatset
Type 600 Dull normal tenacity, not heatset.
Type 601 Dull normal tenacity, heatset.
These prices are subject to changes without notice.
Terms—Net 30 Days.
Freight Terms—Terms are F.O.B. shipping point, freight prepaid our route to points east of the Mississippi River within the continental limits of the United States, for points west of the Mississippi River freight allowed to the Mississippi River crossing nearest purchaser's mill if shipped overland, or port of exit of purchaser's choice east of Mississippi River.

Industrial Rayon Corp.

Effective August 18, 1958

Nylon Staple

1.5 denier	$1.33 per lb.
2, 3 and 6 denier	1.28 per lb.
8 denier	1.15 per lb.
15 and 22 denier	1.08 per lb.

Bright, semi-dull, and full-dull. Required lengths.
Terms: Net 30 days f.o.b. point of shipment; title to pass to buyer on delivery of goods to carrier. Domestic transportation charges prepaid with transportation allowed at lowest published rate to all points east of the Mississippi River.

POLYESTER

E. I. du Pont de Nemours & Co.

Textile Fibers Dept.
Current Prices

"Dacron"* Staple and Tow

Denier	Luster	Type	Length	Tow Bundle	1st Gr.
1.25	Semidull	54	1¼"-3"		$1.56
1.5	Semidull	64	1¼"-3" & Tow	375M-600M	1.56
1.5	Semidull	54	1¼"-3" & Tow	375M-600M	1.51
3.0	Semidull	64	1¼"-4½" & Tow	375M-500M	1.51
3.0	Semidull	54	1¼"-4½" & Tow	375M-500M	1.41
4.5	Semidull	64	1¼"-4½" & Tow	375M-500M	1.46
4.5	Semidull	54	1¼"-4½" & Tow	375M-500M	1.41
6.0	Semidull	64	1¼"-4½" & Tow	375M-500M	1.46
6.0	Semidull	54	1¼"-4½" & Tow	375M-500M	1.41

• Type:
Type 54—Semi Dull, Normal Tenacity.
Type 64—Pill Resistant more Dyeable Staple for Worsted & Rayon Blends.
Terms: Net 30 Days.
F. O. B. Shipping Point—Freight prepaid our route to points east of the Mississippi River within the continental limits of the United States, for points west of the Mississippi River freight allowed to the Mississippi River crossing nearest purchaser's mill if shipped overland, or port of exit of purchaser's choice east of Mississippi River.

POLYVINYL ACETATE

American Viscose Corp. Effective October 1, 1956

"Vinyon"® Staple

3.0 denier	⅛" unopened	$.80 per lb.
3.0 "	1¼" unopened	.80 per lb.
3.0 "	1¼" opened	.90 per lb.
3.0 "	2" opened	.90 per lb.
3.0 "	2" unopened	.80 per lb.
5.5 "	1" opened	.90 per lb.
5.5 "	3⅛" opened	.90 per lb.
5.5 "	3⅛" unopened	.80 per lb.

Terms: Net 30 days.

SARAN FIBERS

The Saran Yarns Company — Odenton, Maryland

The Hall Company (Selling Agent)
41 East 42 Street, New York 17, N. Y. (Oxford 7-8996)
Current Prices:

Saran Staple

Type	Denier	Natural	Colors
2N	22	$0.70	$0.75
2N	16	.74	.79
3Q•	22	.63	.67

In any staple length 1½ to 6". Also 45 denier, 7" cut.
• For carpets and industrial fabrics.
F.O.B. Odenton, Maryland.
Terms: net 30 days.

METALLICS

Textile Fibers Dep't

The Dow Chemical Co., James River Div.
Williamsburg, Va.
Lurex Yarn Division Current Prices

Lurex-MM (Made with Metalized Mylar)

Guage	Width	Yield	Price Gold & Silver	Price Standard Colors and Multicolors
Silver Only				—
				—
				—
				—
150	1/128"	38,000	10.90	
150	1/100"	29,500	10.65	
150	1/64"	19,000	8.35	
150	1/50"	14,500	8.20	On Request
150	1/32"	9,500	8.05	
150	1/16"	4,750	7.90	

Lurex-MF (Mylar-Foil-Mylar) April 28, 1958

Guage	Width	Yield	Price Gold & Silver	Price Standard Colors and Multicolors
150	1/100"	25,000	$8.95	$9.30
150	1/64"	17,200	5.70	6.30
150	1/50"	12,500	5.60	6.15
150	1/32"	8,600	5.50	6.00
150	1/16"	4,000	5.45	5.85

Lurex (Regular, "Butyrate") July 1, 1957

Guage	Width	Yield	Price Gold & Silver	Price Standard Colors and Multicolors
260	1/100"	16,400	$4.50	
260	1/80"	13,000	4.00	
260	1/64"	10,500	3.35	
260	1/50"	8,200	3.25	On Request
260	1/32"	5,200	3.00	
260	1/16"	2,600	2.85	

A. Lurex, Lurex-MM and Lurex-MF are the registered trade-marks of The Dobeckmun Company. Lurex-MM is covered by U. S. Patent #2714569, Serial #267,108. Multicolor is Patent Pending. Mylar is DuPont's polyester film.

B. Standard Colors:

L-941	Scarlet	L-981	Pink Opal
L-984	Turquoise	L-942	Peacock Blue
L-940	Emerald Green	L-983	Violet
L-861	Bronze	L-978	Gunmetal
2A-1	Multicolor	3A-2	Multicolor
4A-5	Multicolor	4A-7	Multicolor
6A-1	Multicolor	6A-2	Multicolor
L-869	Fuchsia	L-982	Blueflower
L-935	Royal Blue	L-980	Apple Green
L-1008	Purple	L-933	Copper
L-850	Jet	L-1007	Green Gold
3A-3	Multicolor	1A-3	Multicolor
4A-14	Multicolor	4A-4	Multicolor
6A-3	Multicolor	4A-15	Multicolor
		3A-4	Multicolor

STATEMENT REQUIRED BY THE ACT OF AUGUST 24, 1912, AS AMENDED BY THE ACTS OF MARCH 3, 1933, AND JULY 2, 1946 (Title 39, United States Code, Section 233) SHOWING THE OWNERSHIP, MANAGEMENT, AND CIRCULATION OF MODERN TEXTILES MAGAZINE published monthly at Manchester, New Hampshire for October 1, 1958.

1. The names and addresses of the publisher, editor, managing editor, and business managers are:
Publisher, Alfred H. McCollough, 303 Fifth Ave., New York 16, N. Y.
Editor, Jerome Campbell, 303 Fifth Ave., New York 16, N. Y.
Managing editor, H. George Janner, 303 Fifth Ave., New York 16, N. Y.
Business manager, H. J. Williams, 303 Fifth Ave., New York 16, N. Y.

2. The owner is: (If owned by a corporation, its name and address must be stated and also immediately thereunder the names and addresses of stockholders owning or holding 1 percent or more of total amount of stock. If not owned by a corporation, the names and addresses of the individual owners must be given. If owned by a partnership or other unincorporated firm, its name and address, as well as that of each individual member, must be given.)
Rayon Publishing Corp., 303 Fifth Ave., New York 16, N. Y.
A. H. McCollough, 303 Fifth Ave., New York 16, N. Y.
Harries A. Mumma, 61 Broadway, New York 6, N. Y.

3. The known bondholders, mortgagees, and other security holders owning or holding 1 percent or more of total amount of bonds, mortgages, or other securities are: (If there are none, so state.)
None.

4. Paragraphs 2 and 3 include, in cases where the stockholder or security holder appears upon the books of the company as trustee or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting; also the statements in the two paragraphs show the affiant's full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bona fide owner.

5. The average number of copies of each issue of this publication sold or distributed, through the mails or otherwise, to paid subscribers during the 12 months preceding the date shown above was: (This information is required from daily, weekly, semiweekly, and triweekly newspapers only.)

A. H. McCOLLOUGH, Publisher

Sworn to and subscribed before me this 19th day of September, 1958.
DORIS P. RATTENBURY
Notary Public, State of New York
No. 24-3211700
Qualified in Kings County
Certificate filed in New York County
Commission Expires March 30, 1959

Gold Metallic Yarn

Standard Yarn Mills, Inc. has developed a new gold metallic yarn which is immediately available in regular Lamé or Lamé with Mylar. The yarn is reported to be completely colorfast, even after 500 hours in the Fadeometer. It is believed the new yarn will be welcomed by wash and wear manufacturers. *For further information write the editors.*

Tycora Yarn Laces

The first laces made of Tycora yarns have been jointly introduced by The Textured Yarn Co., Inc., manufacturers of the yarns, and Mozur Laces, Inc., maker of Tycora laces, with the cooperation of the 15 fashion manufacturers who will be offering garments in the new laces in their Holiday season collections. The various patterns and weights shown were characterized by a softness unusual in lace. The laces were included in a directoire gown, a reversible matching raincoat, tennis dress, a swim suit, and a one-piece at-home costume. *For further information write the editors.*

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End your static problems safely, surely, inexpensively, with the SIMCO "*Midget*" static eliminator. It's guaranteed to do the job *completely in any machine!* Write for facts today.

the SIMCO company
920 Walnut Street, Lansdale, Pa.

There is no sadder obituary on the pages of time than "We have always done it this way".

We who are responsible for the performance of
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have pioneered many advances in guide technology and production technique, and will continue to do so. The research findings and product experience that have helped us make Lambertville Thread Guides among the smoothest, hardest and most durable in the industry are available to help you with your individual guide problems. Consult us the next time you order guides.

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AND MANUFACTURING COMPANY
LAMBERTVILLE NEW JERSEY

NO YARN TRAPPING WITH
BRAZED ALUMINUM TWO POUND TAKE-UP BOBBIN

New aluminum take-up bobbin with barrel and heads brazed together into a single unit prevents yarn trapping. Exceptional strength at price no higher than ordinary bobbins.

Write us today for full details.

ALLENTOWN BOBBIN WORKS, INC.
ALLENTOWN PENNSYLVANIA

C. Other colors available on a *custom basis only* for which a minimum firm order of 150 lbs. is required.
Regular color prices will apply.
After approval of color swatch, one sample run of 10 lbs. or over can be ordered with an up-charge of $2.00 per lb. over regular color prices.
D. Lurex-MM, Lurex-MF and regular Lurex is supplied on disposable spools having plastic end plugs with ¾" I.D. holes. Spools contain approx. 1 lb. of yarn.
E. Cases contain 6 "LUR-PAKS". Each "LUR-PAK" contains 6 one pound spools.
Weight Data: 1 case 1 lb. spools, gross wt. approx. 44 lbs.—tare wt. approx. 10 lbs.—net wt. approx. 34 lbs.
F. Yields are subject to variation of plus or minus 5%.
G. Terms: 1% 10 days from date of invoice, net 30 days, F.O.B. Cleveland, Ohio. Minimum freight allowed on shipments of 100 pounds and over.
H. Quantity Discount 2,000 to 5,000 lbs., 3%—5,000 lbs. and over, 5%.
Quantity Discounts on request

Lurex Staple

	#260 Butyrate	#150-MF	#150-MM	#100-MM
Straight	$3.00	$5.55	$7.65	$9.50
Crimped	3.10	5.65	7.75	9.60

A. Widths—1/64", 1/100", 1/120", 1/200".
B. Lengths—⅛" to 6½" in increments of ½".
C. Colors—Gold, Silver, others on request.
D. Put-Up: Cartons containing approx. 20# net, 23# gross.
E. Terms: 1% 10 days, net 30 days, F.O.B. Haverhill, Mass. No freight allowed.

Fairtex Corporation

1808 Liberty Life Building
Charlotte 2, N. C.
January 23, 1958

1. Fairtex No. 260 (butyrate)—gold, silver and copper.

Width	Yield (Per Pound)	Price (Per Pound)
1/120"	21,000	$4.75
1/80"	13,000	4.00
1/64"	10,800	3.35
1/50"	8,400	3.25
1/32"	5,300	3.00
1/16"	2,600	2.85
1/8"	1,300	2.70

2. Fairtex with Mylar* No. 100V (2 ply), (metallized type)—silver only.

1/100"	48,000	$13.25
1/80"	37,000	11.40
1/64"	31,000	10.40
1/50"	24,200	10.15
1/32"	15,500	9.80

Fairtex with Mylar* No. 150V (3 ply), (metallized type)—gold, silver and copper.

1/100"	32,000	$10.65
1/80"	25,000	9.25
1/64"	21,000	8.35
1/50"	16,400	8.20
1/32"	10,500	8.05

3. Fairtex with Mylar* No. 150F, (foil type)—gold, silver and copper.

1/100"	28,000	$7.75
1/80"	21,450	7.00
1/64"	17,200	5.70
1/50"	13,400	5.60
1/32"	8,600	5.50
1/16"	4,300	5.45

4. General Information:
a. Staple available upon request on above types.
b. Above types also available supported with Nylon, Fortisan or other synthetics.
c. Colors available on above upon request at slight additional cost.
d. Quantity discounts on above prices.
e. Fairtex is supplied on 1 lb. disposable spools—48 spools per case and on ½ lb. disposable spools—100 spools per case.

Metlon Corp.

Effective April 28, 1958

Metlon*-Mylar**
Price List
Metlon* F-Mylar (Foil Laminated)

Width	Yards Per Lb. (Plus or minus 5%)	Price Per Lb. Gold or Silver	Standard Colors
1/120"	32,200	$9.80	$10.15
1/80"	21,500	7.10	7.45
1/64"	17,200	5.70	6.30
1/50"	13,500	5.60	6.15
1/32"	8,600	5.50	6.00
1/16"	4,300	5.45	6.00
1/8"	2,150	5.45	6.00

Quantity Discounts: 2,000 lbs.—3%
5,000 lbs.—5%

To earn discount, quantity ordered must be withdrawn within 90 days from date of order.
Terms: 1% 10 days, net 30. F.O.B. Providence, Rhode Island. Minimum freight allowed on shipments of 100 lbs. or over.
Put Up: Plastic Disposable Spools.
Minimum Order: One case (approximately 40 lbs. net). Smaller quantities subject to surcharge.
Palletizing: On request, shipments of 4 cases or more will be palletized without additional charge.
Prices apply to continental U. S. A., Canada and Mexico.
* Metlon's registered trademark for non-tarnishing metallic yarn.
** DuPont's registered trademark for polyester film.

Reynolds Metals Co.

Reynolds Aluminum Yarns
January 29, 1958

200 Series

¢ PRICE PER POUND—48 THRU 1,999 POUNDS

	PRODUCT NUMBER	WIDTH	APPROX. YIELDS IN LINEAL YDS. PER LB.	(1) Standard Colors	(2) Special Colors	(3) Non-Standard Colors	(4) Multi-Colors
Acetate-Butyrate	204	1/8"	1,350	$2.80	$3.05	$3.05	$3.05
	204	1/16"	2,700	2.85	3.10	3.10	3.10
	204	1/32"	5,400	3.00	3.25	3.25	3.25
	204	1/50"	8,450	3.25	3.50	3.50	3.50
	204	1/64"	10,800	3.35	3.60	3.60	3.60
	204	1/80"	13,500	4.00	4.25	4.25	4.25
Mylar-Foil	230	1/8"	1,450	$5.60	$5.95	$5.95	$5.95
	230	1/16"	2,900	5.75	6.10	6.10	6.10
	230	1/32"	5,800	5.90	6.25	6.25	6.25
	230	1/50"	9,050	6.05	6.40	6.40	6.40
	230	1/64"	11,600	6.20	6.55	6.55	6.55
	230	1/80"	14,450	7.25	7.60	7.60	7.60
Mylar-Foil	235	1/8"	2,150	$5.35	$5.70	$5.70	$5.70
	235	1/16"	4,300	5.45	5.85	5.85	5.85
	235	1/32"	8,600	5.50	6.00	6.00	6.00
	235	1/50"	13,400	5.60	6.15	6.15	6.15
	235	1/64"	17,200	5.70	6.30	6.30	6.30
	235	1/80"	21,450	7.00	7.35	7.35	7.35
Mylar-Foil	215	1/8"	1,730	$5.30	$5.65	$5.65	$5.65
	215	1/16"	3,460	5.45	5.80	5.80	5.80
	215	1/32"	6,920	5.60	5.95	5.95	5.95
	215	1/50"	10,800	5.75	6.10	6.10	6.10
	215	1/64"	13,840	5.90	6.25	6.25	6.25
	215	1/80"	17,270	6.95	7.30	7.30	7.30

Reymet Staple: Foil Mylar $6.00 per lb.
Metallized Mylar: $10.50 per lb. These can be cut in width to 1/220", also full range of Colors.
(1) Standard Yarn Colors: Silver and Gold.
¢ (2) Special Yarn Colors: Refer to Products Supervisor, Special Foil Products located at Richmond, Va.
(3) Non-Standard Yarn Colors: Refer to Products Supervisor, Special Foil Products located at Richmond, Virginia.
(4) Multi-Colors: One or two colors.
¢ Quantity Discounts to be applied on invoice:
5,000 lbs. and over less 5%.
2,000 thru 4,999 lbs. less 3%.

Items can be grouped for quantity price provided each is held to a minimum of 250 pounds. No grouping for less than 250 pounds.
Minimum acceptable orders for standard and special colors is 48 pounds per size and color.
Minimum acceptable order for non-standard colors is 150 pounds per size and color.

AVAILABLE PACKAGES:
Following types available:
Die-cast aluminum spools with straight flange; 3" O.D., 3¼" traverse. Each spool contains approximately 8 ounces of yarn. These spools, billed at $.40 each are returnable for credit in good condition, F.O.B. Reynolds Metals Company, 11th & Byrd Streets, Richmond, Virginia.
No charge returnable plastic spools with 3¼" O.D., 4½" traverse. Each spool contains approximately 1 pound of yarn. These spools are returnable for credit @ $.02 each F.O.B. customer's plant. Subject to inspection and count of seller.
Tin spools with straight flange with 3" O.D., 3¼" traverse. Each spool contains approximately 8 ounces of yarn. These spools, billed at $.10 each are returnable for credit in good condition, F.O.B. Reynolds Metals Company, 11th & Byrd Streets, Richmond, Virginia.

PACKING:
36 spools per corrugated fiber carton, size 18-1/16" x 14-1/16" x 11".

ORDERING DATA:
Specify Product, Width, Color and Type of Spool.

Aluminized Series

PRODUCT NUMBER	WIDTH	APPROX. YIELDS IN LINEAL YARDS PER POUND	PRICE PER POUND 48 THRU 1999 POUNDS
250	1/32"	10,000	$8.05
250	1/50"	15,650	8.20
250	1/64"	20,000	8.35
250	1/80"	25,000	10.25
255	1/32"	15,500	$9.80
255	1/50"	24,200	10.15
255	1/64"	31,000	10.40
255	1/80"	38,700	12.40

250 offered in silver and gold.
255 offered in silver only.
Quantity discounts to be applied on invoice:
2,000 lbs. and over less 3%.
5,000 lbs. and over less 5%.

Sizes can be grouped for quantity price providing each is held to a minimum of 250 lbs.
No grouping for less than 250 lbs. Minimum acceptable order is 48 pounds per item.

AVAILABLE PACKAGES:
Following types available.
Die-cast aluminum spools with straight flange, 3" O.D., 3¼" traverse. Each spool contains approximately 8 ounces of yarn. These spools, billed at $.40 each, are returnable for credit in good condition, F.O.B. Reynolds Metals Company, 11th and Byrd Streets, Richmond, Virginia.
No charge returnable plastic spools with 3¼" O.D., 4½" traverse. Each spool contains approximately 1 pound of yarn. These spools are returnable for credit @ $.02 each, F.O.B. customer's plant. Subject to inspection and count of seller.
Tin spools with straight flange with 3" O.D., 3¼" traverse. Each spool contains approximately 8 ounces of yarn. These spools, billed at $.10 each, are returnable for credit in good condition, F.O.B. Reynolds Metals Company, 11th and Byrd Streets, Richmond, Virginia.

PACKING:
36 spools per corrugated fiber carton, size 15¼" x 14⅛" x 11".

ORDERING DATA:
Specify Product, Color, Width, and Type of Spool.

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Exclusively for Business, Laboratory and Mill Services; Positions and Men Wanted; Business Opportunities; Mill Properties Wanted or For Sale; Reconditioned Machinery and Equipment, etc.

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By foreign synthetic fiber producer, chemical engineer with polyester fiber production (polycondensation through spinning and finishing of yarn and staple). Must be willing to travel and be available immediately. Full particulars.

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Modern Textiles Magazine
303 Fifth Ave., N. Y. 16, N. Y.

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303 Fifth Ave., N. Y. 16, N. Y.

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BERTNER YARN COMPANY
Empire State Bldg. New York City
Oxford 5-1170

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Modern Textiles Magazine, N. Y. 16, N. Y.

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Calendar of Coming Events

Nov. 5—AATT monthly meeting. Della Robbia Room, Hotel Vanderbilt, New York, N. Y.
Nov. 5-7—Annual National Industrial Engineering and Management Clinic. Sherman Hotel, Chicago, Ill.
Nov. 7-8—Textile Seminar sponsored by University of Georgia Division of Clothing and Textiles in Extension, Teaching, and Research. Georgia Center for Continuing Education, Athens, Ga.
Nov. 8—Georgia Textile Operating Executives, Fall meeting. A. French Textile School, Atlanta, Ga.
Nov. 14-15—Conference on Radiation and High Temperature Behavior of Textiles. Sponsored by New York Academy of Sciences, Polytechnic Institute of Brooklyn, and U. S. Navy Clothing and Textile Research Laboratory. Hotel Barbizon Plaza, New York, N. Y.
Nov. 17-19—Narrow Fabrics Institute, annual meeting. Hotel Roosevelt, New York, N. Y.
Dec. 1-5—National Exposition of Power and Mechanical Engineering. Coliseum, New York, N. Y.
Dec. 3—AATT monthly meeting. Della Robbia Room, Hotel Vanderbilt, New York, N. Y.

1959

Jan. 7—AATT monthly meeting. Della Robbia Room, Hotel Vanderbilt, New York, N. Y.
Jan. 20-30—Plant Maintenance & Engineering Show. International Amphitheatre, Chicago, Ill.
Jan. 26-29—International Heating & Air Conditioning Exposition. Convention Hall, Philadelphia, Pa.
Feb. 3-5—Reinforced Plastics Div. of Society of the Plastics Industry 14th Annual Technical & Management Conference. Edgewater Beach Hotel, Chicago, Ill.
Feb. 4—AATT monthly meeting. Della Robbia Room, Hotel Vanderbilt, New York, N. Y.
Mar. 4—AATT monthly meeting. Della Robbia Room, Hotel Vanderbilt, New York, N. Y.
Mar. 19-21—American Cotton Manufacturers Institute annual convention. Palm Beach Biltmore Hotel, Palm Beach, Fla.
Apr. 1—AATT monthly meeting. Della Robbia Room, Hotel Vanderbilt, New York, N. Y.
Apr. 29-30—The Fiber Society, Inc. spring meeting. Fontana Village, N. C.
May 4-8—Knitting Arts Exhibition. The Auditorium, Atlantic City, N. J.
May 5—93rd annual meeting Underwear Institute. Hotel Traymore, Atlantic City, N. J.
May 6—AATT monthly meeting. Della Robbia Room, Hotel Vanderbilt, New York, N. Y.
May 8-13—Tufted Textile Manufacturers annual convention. Cruise from Savannah, Ga. to Nassau.
May 12-14—Cotton Research Clinic. Grove Park Inn, Asheville, N. C.
May 12-16—Textile Institute annual conference. Scarborough, England.
Jun. 3—AATT monthly meeting. Della Robbia Room, Hotel Vanderbilt, New York, N. Y.
Jun. 9-12—Material Handling Institute's Exposition. Public Auditorium, Cleveland, Ohio.

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Protection of Metal Machine Parts

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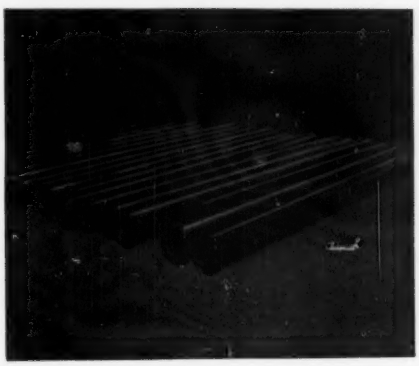
HERESITE coated fans and blowers safely exhaust any concentration of acid fumes. The coating resists conditions that would attack even special alloy metals.



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HERESITE & CHEMICAL COMPANY

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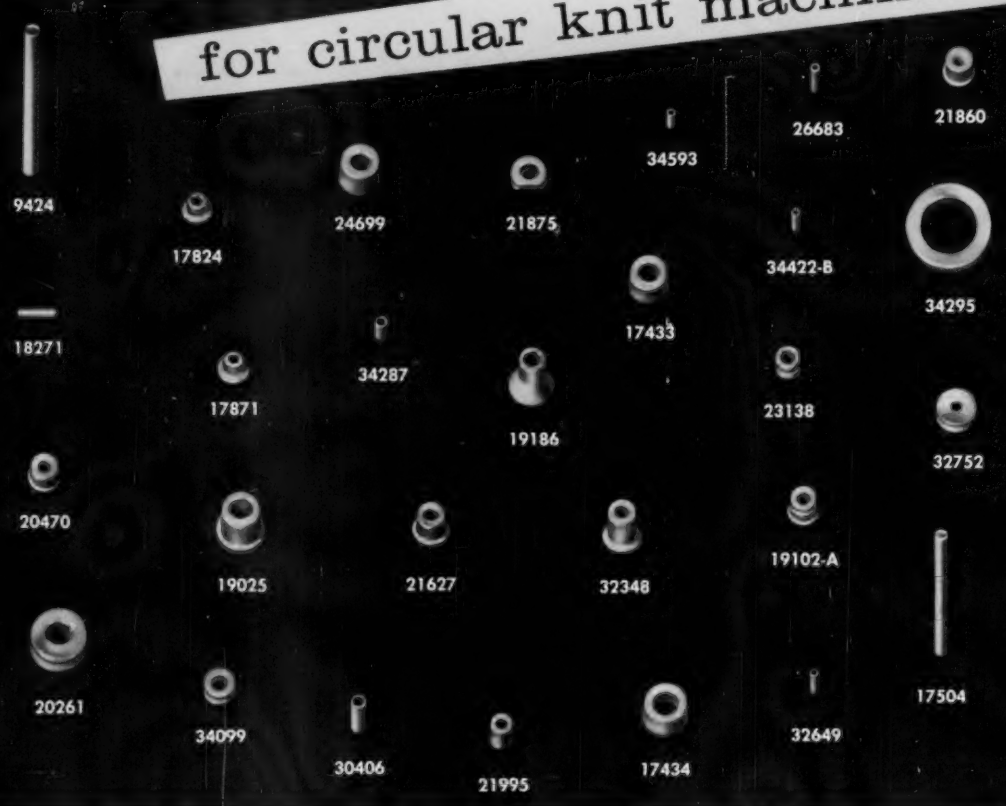
ALSIMAG 192 *Guides*

for circular knit machines



You get all these advantages with ALSIMAG guides

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I. D.: 0.482"

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I. D.: 0.625"

NOTE:
These standard AlSiMag Rings are available in various thicknesses; weights in proportion.

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